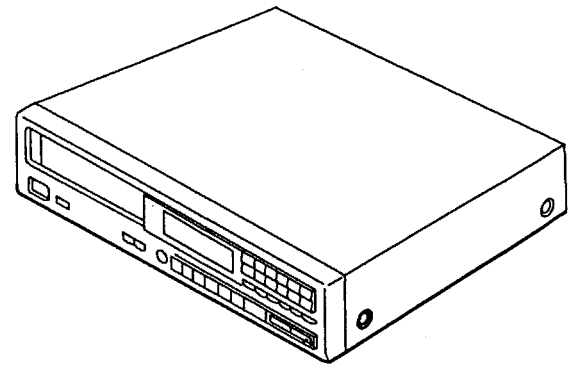
S/M Code No.91 – 035 DATE OF ISSUE 4/1991 – T

AIWA®

DX-Z200

SERVICE MANUAL



COMPACT DISC PLAYER

• BASIC CD MECHANISM : KSL – 210AFM • TYPE. H.E.K

◆ DX – Z200 is the Compact Disc Player which is connected to CU – DZ200 only.

SPECIFICATION

Type:	Compact disc digital audio system
Disc:	Compact disc
Scanning method:	Non contact optical scanner (semiconductor laser application)
Laser:	Semiconductor laser (λ=780 nm)
Rotation speed:	Approx. 500 rpm – 200 rpm (CLV)
Error correction:	Cross Interleave, Reed Solomon code
No. of channels:	2 channels
Wow/Flutter:	Unmeasurable
Digital optical outputs:	
	Optical connector (2)
	Light wave length: 660 nm

Power and Miscellaneous

Power supply:	
H	AC 120V/220V/240V, 50/60 Hz
E	AC 220V, 50 Hz
K	AC 240V, 50 Hz
Power consumption:	10W
Dimensions:	360 (W) × 86 (H) × 306.5 (D) mm
	(14 1/4 (w) × 3 1/2 (H) × 12 1/8 (D) in)
Weight:	3.5 kg (7.7 lbs)

• Design and specifications are subject to change without notice.

AIWA Co., Ltd. Tokyo Japan

Printed in Japan

DISASSEMBLY INSTRUCTIONS

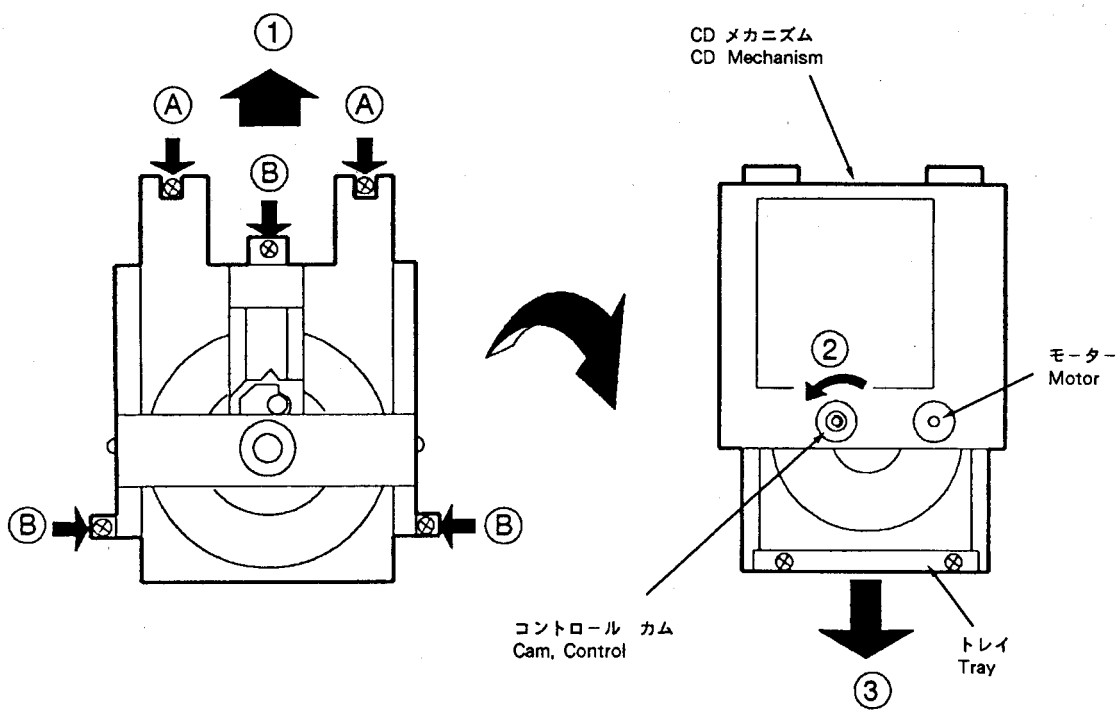
1. "Tray" Removal

For AUTOMATIC operation

1) Turn on the power.
2) Loosen 2 screws (Ⓐ).
3) Push the OPEN/CLOSE key, take out the tray, and pull out it toward you.

For MANUAL operation

1) Loosen 2 screws (Ⓐ).
2) Remove 3 screws (Ⓑ) and detach the "CD Mechanism" while moving it in the direction indicated by arrow ①.
3) Reverse the "CD Mechanism" and turn the "Control Cam" in the direction indicated by arrrow ②.
4) Pull out the "Tray" in the direction indicated by arrow③ immediately when it is moved.



■ ACCESSORIES/PACKAGE LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1	★81-VX2-901-019	INSTRUCTION BOOKLET,EX	※	1
	2	★81-666-629-010	OPTICAL CABLE 2		1
	3	★81-666-627-110	FG CONNECTER ASSY 7P		1

PROTECTION OF EYES FROM LASER BEAM DURING SERVICING

This set employs laser. Therefore, be sure to follow carefully the instructions below when servicing.

WARNING!!
WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION. BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 30cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

ADVARSEL!

Usynlig laserståling ved åbning, når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

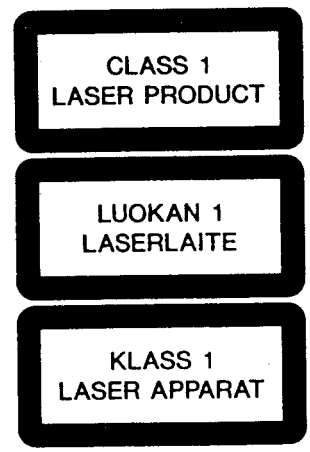
VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

ATTENTION
L'utilisation de commandes, réglages ou procédures autres que ceux spécifiés peut entraîner une dangereuse exposition aux radiations.

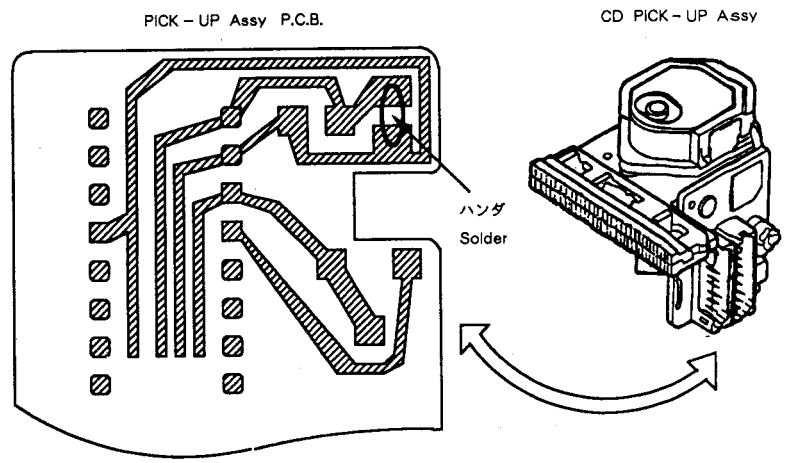
This Compact Disc player is classified as a CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is located on the rear exterior.



Precaution to replace Optical block (KSS – 210A)

Body or clothes electrostatic potential could ruin laser diode in the optical block. Be sure ground body and workbench, and use care the clothes do not touch the diode.

1) After the connection, remove solder shown in figure below.



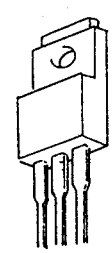
ELECTRICAL MAIN PARTS LIST

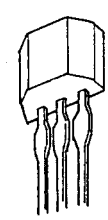
REF. NO.	PART NO.	DESCRIPTION
===IC===		
	87-001-184-010	IC, CXA1081S
	87-001-400-010	IC, CXA1082S
	87-001-944-010	IC, CXD1167Q
	87-002-531-010	IC, CXK5816PS
	81-666-621-110	IC, CXP5034H-087S
	81-VX2-620-010	IC, CXP5058H-579Q
	87-002-211-010	IC, GPIF32T (DIGITAL OUT1, 2)
	87-001-173-019	IC, LA6510
	87-001-567-019	IC, LA6520
	81-666-622-010	IC, LC6522H-3923
	87-020-726-010	IC, M5278L56
	87-001-565-010	IC, M74LS365
	87-027-235-019	IC, NJM4558D
	87-027-564-019	IC, TC4011BP
===TRANSISTOR===		
	89-112-964-019	TRANSISTOR, 2SA1296Y
	89-213-702-019	TRANSISTOR, 2SB1370E
	89-318-154-019	TRANSISTOR, 2SC1815, Y
	89-320-011-019	TRANSISTOR, 2SC2001K
	89-420-612-019	TRANSISTOR, 2SD2061E
	87-026-269-019	TRANSISTOR, DTA114ES
	87-026-214-019	TRANSISTOR, DTA114YS
	87-026-245-019	TRANSISTOR, DTC114YS
	87-026-218-019	TRANSISTOR, DTC144ES
===DIODE===		
	87-027-376-019	DIODE, 1B4B41
	87-001-574-019	DIODE, 1SR139-200
	87-020-110-019	DIODE, 1SS177
	87-001-566-019	DIODE, ZENER HZ2B-1
	87-001-239-019	DIODE, ZENER HZ30-2
===MAIN CIRCUIT BOARD SECTION===		
C101	★87-018-132-019	CAP, CERA SS 2200P
C103	★87-010-380-019	CAP, ELECT 47-16SME
C105	★87-010-380-019	CAP, ELECT 47-16SME
C106	★87-010-380-019	CAP, ELECT 47-16SME
C107	★87-018-134-019	CAP, CERA SS 0.01
C108	★87-010-380-019	CAP, ELECT 47-16SME
C111	★87-018-134-019	CAP, CERA SS 0.01
C112	★87-010-380-019	CAP, ELECT 47-16SME
C201	★87-010-380-019	CAP, ELECT 47-16SME
C202	★87-018-132-019	CAP, CERA SS 2200P
C203	★87-018-134-019	CAP, CERA SS 0.01
C204	★87-018-205-019	CAP, CERA SS 0.022
C205	★87-018-205-019	CAP, CERA SS 0.022
C206	★87-018-205-019	CAP, CERA SS 0.022
C209	★87-010-404-019	CAP, ELECT 4.7-50SME
C211	★87-010-380-019	CAP, ELECT 47-16SME
C213	★87-010-378-019	CAP, ELECT 10-16SME
C215	★87-018-134-019	CAP, CERA SS 0.01
C216	★87-010-380-019	CAP, ELECT 47-16SME
C217	★87-010-379-019	CAP, ELECT 22-16SME
C218	★87-010-380-019	CAP, ELECT 47-16SME
C219	★87-018-133-019	CAP, CERA SS 4700P
C220	★87-010-404-019	CAP, ELECT 4.7-50SME
C221	★87-010-401-019	CAP, ELECT 1-50SME
C301	★87-010-400-019	CAP, ELECT 0.47-50SME
C303	★87-018-131-019	CAP, CERA SS 1000P
C304	★87-018-209-019	CAP, CERA 0.1
C305	★87-010-380-019	CAP, ELECT 47-16SME
C306	★87-018-150-019	CAP, CERA SS 18P CH
C307	★87-018-150-019	CAP, CERA SS 18P CH
C308	★87-010-380-019	CAP, ELECT 47-16SME
C309	★87-010-380-019	CAP, ELECT 47-16SME

REF. NO.	PART NO.	DESCRIPTION
C310	★87-018-134-019	CAP, CERA 0.01
C311	★87-010-400-019	CAP, ELECT 0.47-50SME
C312	★87-018-104-019	CAP, CERA SS 10P
C314	★84-733-617-019	CAP, CERA SS 22P
C315	★87-018-134-019	CAP, CERA 0.01
C401	★87-018-209-019	CAP, CERA 0.1
C402	★87-018-209-019	CAP, CERA 0.1
C404	★87-010-380-019	CAP, ELECT 47-16SME
C405	★87-010-380-019	CAP, ELECT 47-16SME
C406	★87-010-380-019	CAP, ELECT 47-16SME
C407	★87-010-380-019	CAP, ELECT 47-16SME
C501	★87-010-124-019	CAP, ELECT 4700-16SME
C502	★87-015-262-019	CAP, ELECT 3300-16SME
C503	★87-010-378-019	CAP, ELECT 10-16SME
C504	★87-010-380-019	CAP, ELECT 47-16SME
C505	★87-010-379-019	CAP, ELECT 22-16 SME
C506	★87-010-380-019	CAP, ELECT 47-16SME
C507	★87-018-134-019	CAP, CERA SS 0.01
C508	★87-010-410-019	CAP, ELECT 330-50SME
C509	★87-010-408-019	CAP, ELECT 47-50V
C510	★87-010-379-019	CAP, ELECT 22-16SME
C511	★87-010-379-019	CAP, ELECT 22-16SME
C512	★87-010-379-019	CAP, ELECT 22-16SME
C513	★87-012-351-019	CAP, 0.022F-5.5(DC)
C514	★87-010-380-019	CAP, ELECT 47-16SME
C515	★87-010-380-019	CAP, ELECT 47-16SME
C518	★87-018-134-019	CAP, CERA SS 0.01
C601	★87-010-380-019	CAP, ELECT 47-16SME
C604	★87-010-402-019	CAP, ELECT 2.2-50SME
C605	★87-018-209-019	CAP, CERA 0.1
C606	★87-018-209-019	CAP, CERA 0.1
C607	★87-018-134-019	CAP, CERA SS 0.01
C615	★87-018-134-019	CAP, CERA SS 0.01
C701	★87-010-378-019	CAP, ELECT 10-16
C703	★87-018-134-019	CAP, CERA SS 0.01
C704	★87-018-104-019	CAP, CERA SS 10P
C705	★87-018-134-019	CAP, CERA SS 0.01
C706	★87-018-134-019	CAP, CERA SS 0.01
C707	★87-018-134-019	CAP, CERA SS 0.01
C902	★87-018-134-019	CAP, CERA SS 0.01
C910	★87-018-134-019	CAP, CERA SS 0.01
C911	★87-018-134-019	CAP, CERA SS 0.01
FL101	★87-008-372-019	FILTER EMI BL
FL102	★87-008-372-019	FILTER EMI BL
J1	87-002-211-010	IC, GPIF32T (DIGITAL OUT1)
J2	87-002-211-010	IC, GPIF32T (DIGITAL OUT2)
L101	★87-003-147-019	COIL, 22 UH
L102	★87-003-147-019	COIL, 22 UH
L103	★87-003-147-019	COIL, 22 UH
L202	★87-003-147-019	COIL, 22 UH
L301	★87-003-147-019	COIL, 22 UH
L302	★87-003-147-019	COIL, 22 UH
L501	★87-003-147-019	COIL, 22 UH
L701	★87-003-147-019	COIL, 22 UH
L901	★87-003-154-019	COIL, 220 UH
R515	★87-029-022-019	RES, MF 560-1W
R519	★87-025-346-019	RES, NF 10-1W
R638	★81-666-638-010	RES, ARRAY 22KX6
SFR101	★87-024-173-019	SFR, 22K
SFR102	★87-024-173-019	SFR, 22K
SFR201	★87-024-173-019	SFR, 22K
SFR202	★87-024-173-019	SFR, 22K
SFR203	★87-024-168-019	SFR, 1K
X301	★84-733-617-019	RESONATER, CRYSTAL 16.9344MHZ
X601	★87-008-394-010	RESONATER, CERAMIC CST 4.19MGW

REF. NO.	PART NO.	DESCRIPTION
===FRONT CIRCUIT BOARD SECTION===		
C801	★87-010-234-019	CAP, ELECT 47-16 SRE
FL801	81-666-626-010	FL-13-BT-98GK (DISPLAY)
S801	87-036-142-019	TACT SW (2)
S802	87-036-142-019	TACT SW (4)
S803	87-036-142-019	TACT SW (+10)
S804	87-036-142-019	TACT SW (BLANK)
S805	87-036-142-019	TACT SW (1)
S806	87-036-142-019	TACT SW (3)
S807	87-036-142-019	TACT SW (5)
S808	87-036-142-019	TACT SW (ERASE)
S809	87-036-142-019	TACT SW (6)
S810	87-036-142-019	TACT SW (8)
S811	87-036-142-019	TACT SW (0)
S812	87-036-142-019	TACT SW (7)
S813	87-036-142-019	TACT SW (9)
S814	87-036-142-019	TACT SW (PROGRAM)
S815	87-036-142-019	TACT SW (FILE)
S816	87-036-142-019	TACT SW (A←→B)
S817	87-036-142-019	TACT SW (DELETE)
S818	87-036-142-019	TACT SW (▲ OPEN/CLOSE)
S819	87-036-142-019	TACT SW (DISPLAY)
S820	87-036-142-019	TACT SW (EDIT)
S821	87-036-142-019	TACT SW (REPEAT)
S822	87-036-142-019	TACT SW (INDEX←)
S823	87-036-142-019	TACT SW (⏮ B SKIP)
S824	87-036-142-019	TACT SW (■ STOP)
S825	87-036-142-019	TACT SW (▶ PLAY)
S826	87-036-142-019	TACT SW (◀◀ F BWD)
S827	87-036-142-019	TACT SW (▶▶ F FWD)
S828	87-036-142-019	TACT SW (▶⏭ F SKIP)
S829	87-036-142-019	TACT SW (▮▮ PUASE)
S830	87-036-142-019	TACT SW (INDEX→)
===IC CIRCUIT BOARD SECTION===		
C613	★87-018-133-019	CAP, CERA SS 4700P
C614	★87-018-134-019	CAP, CERA SS 0.01
===SWITCH CIRCUIT BOARD SECTION===		
S501	87-036-113-010	SLIDE SW (TIMER PLAY)
S502	87-031-692-019	PUSH SW (POWER)
===MOTOR-1 CIRCUIT BOARD SECTION===		
※PCB-E	★91-625-848-119	MOTOR-1 C.B (RF-310T-11400)
※PCB-E	★91-628-263-119	MOTOR-1 C.B (MDN-4RA3NTAS/ 4RA3ETA)
※M1	9X-264-077-019	MOTOR GEAR ASSY (SLED) (RF-310T-11400)
※M1	9X-264-134-419	MOTOR GEAR ASSY (SLED) (MDN-4RA3ETA)
※M2	9X-264-133-719	MOTOR ASSY (W/CHASSIS, T.T) (SPINDLE) (RF-310T-11400)
※M2	9X-264-135-819	MOTOR ASSY (W/CHASSIS, T.T) (SPINDLE) (MDN-4RA3NTAS)
S701	91-572-053-110	LEAF SW (INSIDE LIMIT)
===MOTOR-2 CIRCUIT BOARD SECTION===		
M3	9X-264-133-619	MOTOR ASSY (LOADING)
===MISCELLANEOUS===		
	98-848-127-310	PICK UP, KSS-210A(S) (RP)
⚠	★87-085-184-010	BUSHING AC CORD D (H)
⚠	★87-085-185-010	BUSHING AC CORD E (K, E)
⚠	★87-034-757-010	AC CORD H (H)
⚠	★87-034-756-010	AC CORD E (E)
⚠	★87-034-764-010	AC CORD K (K)
⚠PT501	81-666-625-019	POWER TRANSFORMER H (H)
⚠PT501	81-666-623-019	POWER TRANSFORMER E (E)
⚠PT501	81-666-624-019	POWER TRANSFORMER K (K)
⚠S503	87-031-586-010	ROTARY SW AC(AC VOLTAGE) (H)
S702	91-572-052-110	LEAF SW (OPEN/CLOSE)

※Caution
Two Types of the spindle (DISC) motor and sled motor are used, but they are not compatible.
Check the part numbers (MDN ····, RF ····) on the labels of motors and replace motors with the same one.





2SA1296	2SB1370	DTA114
2SC1815	2SD2061	DTC114
2SC2001		DTC144

IC DESCRIPTION

IC,CXD1167Q

Pin No.	Pin Name	I/O	Description
1	FSW	O	Output to switch the time constant of the spindle motor output filter.
2	MON	O	Spindle motor on/off control output.
3	MDP	O	Spindle motor drive output. Coarse control in the CLV.S mode and phase control in the CLV.P mode.
4	MDS	O	Spindle motor drive output. Speed control in the CLV.S mode.
5	EFM	I	Inputs an EFM signal from the RF amplifier.
6	ASY	O	Output to control the slice level of the EFM signal.
7	LOCK	O	The GFS signal is sampled by the WFCK/16. When the GFS signal is "H", this pin outputs "H", and when the signal is "L" 8 times continuously, it outputs "L".
8	VCOO	O	VCO output. When this is locked to the EFM signal. f = 8.6436MHz
9	VCOI	I	VCO input.
10	TEST	—	Connected to GND. (0V)
11	PDO	O	Phase comparison output between the EFM signal and VCO/2.
12	VSS	—	Connected to GND. (0V)
13	CLK	I	Inputs a clock signal for the serial data transfer from CPU. Latches data at the rise of the clock signal.
14	$\overline{\text{XLT}}$	I	Latch input from CPU. Latches 8-bit shift register data (serial data from CPU) to each register.
15	DATA	I	Inputs serial data from CPU.
16	$\overline{\text{XRST}}$	I	System reset input. The system is reset at "L" input.
17	CNIN	I	Tracking pulse input.
18	SENSE	O	Outputs the internal state according to the address.
19	MUTG	I	Muting input. When the ATTM in the internal register is "L", the system is in the normal state if the MUTG is "L" and the sound is muted if the MUTG is "H".
20	CRCF	O	Outputs the CRC checking result of sub-code Q. (Reserved)
21	EXCK	I	Clock input for the sub-code serial output. (Connected to GND)
22	SBSO	O	Sub-code serial output. (Reserved)
23	SUBQ	O	Sub-code Q output.
24	SCOR	O	Sub-code sync S0 + S1 output.
25	SQCK	I/O	Clock signal for reading of sub-code Q.
26	SQEX	I	SQCK select input. (Connected to +5V)
27	DOTX	O	Digital audio interface output.
28	GFS	O	Display output of the frame sync locking state. Goes "H" when locked.
29 ~ 32	TEST (DB08) ~ TEST (DB05)	—	Connected to GND. (Do not open.) Data terminal of external RAM.
33	VDD	—	Power supply (+5V)
34 ~ 37	TEST (DB04) ~ TEST (DB01)	—	Connected to GND. (Do not open.) Data terminal of the external RAM.

Pin No.	Pin Name	I/O	Description
38 〜 48	TEST (RA01) 〜 TEST (RA11)	—	Connected to GND. (Do not open.) Address output of the external RAM.
49	TEST ($\overline{\text{RAWE}}$)	—	Connected to GND. (Do not open)
50	TEST ($\overline{\text{RACS}}$)	—	Connected to GND. (Do not open)
51	C4M	O	1/2 division output of the crystal oscillator. f = 4.2336MHz
52	VSS	—	Connected to GND. (0V)
53	XTAI	I	Crystal oscillator input. f = 8.4672MHz
54	XTAO	O	Crystal oscillator output. f = 8.4672MHz
55	MD1	I	Mode select input 1 used at "L" Mode select input 2 used at "L" Mode select input 3 used at "H" Mode (Used in the mode with the clock frequency 8.4672MHz, the digital output OFF. the digital filter ON.)
56	MD2	I	
57	MD3	I	
58	SLOB	I	Input to switch the code of the audio data output. "L" causes the 2 second complement output and "H" causes the offset binary output.
59	PSSL	I	Input to switch the mode of the audio data output. "L" causes serial output and "H" causes parallel output.
60	APTR	O	Aperture correction control output. 44.1kHz with the filter OFF. (Reserved)
61	APTL	O	Aperture correction control output. 44.1kHz with the filter OFF. (Reserved)
62	DA01 (C1F1)	O	DA01(LSB of parallel audio data) output with PSSL = "H". C1F1 output with PSSL = "L". (Reserved)
63	DA02 (C1F2)	O	DA02 output with PSSL = "H". C1F2 output with PSSL = "L". (Reserved)
64	DA03 (C2F1)	O	DA03 output with PSSL = "H". C2F1 output with PSSL = "L". (Reserved)
65	DA04 (C2F2)	O	DA04 output with PSSL = "H". C2F2 output with PSSL = "L". (Reserved)
66	DA05 (C2FL)	O	DA05 output with PSSL = "H". C2FL output with PSSL = "L". (Reserved)
67	DA06 (C2PO)	O	DA06 output with PSSL = "H". C2PO output with PSSL = "L". (Reserved)
68	DA07 (RFCK)	O	DA07 output with PSSL = "H". RFCK output with PSSL = "L". (Reserved)
69	DA08 (WFCK)	O	DA08 output with PSSL = "H". WFCK output with PSSL = "L". (Reserved)
70	DA09 ($\overline{\text{PLCK}}$)	O	DA09 output with PSSL = "H". PLCK output with PSSL = "L". (Note 1)(Reserved)
71	DA10 (VGFS)	O	DA10 output with PSSL = "H". VGFS output with PSSL = "L". (Reserved)
72	DA11 (GTOP)	O	DA11 output with PSSL = "H". GTOP output with PSSL = "L". (Reserved)
73	VDD	—	Power supply (+5V)
74	DA12 ($\overline{\text{RA0V}}$)	O	DA12 output with PSSL = "H". RA0V output with PSSL = "L".
75	DA13 (C4LR)	O	DA13 output with PSSL = "H". C4LR output with PSSL = "L".
76	DA14 (C210)	O	DA14 output with PSSL = "H". C210 output with PSSL = "L".
77	DA15 (C210)	O	DA15 output with PSSL = "H". C210 output with PSSL = "L". (Note 2)
78	DA16 (DATA)	O	DA16(MSB of parallel audio data) output with PSSL = "H". DATA output with PSSL = "L". (Note 3)
79	WDCK	O	Strobe signal output. 88.2kHz with the filter OFF.
80	LRCK	O	Strobe signal output. 44.1kHz with the filter OFF. (Reserved)

Note 1) $\overline{\text{PLCK}}$: VCO/2 output. When locked to the EFM signal, f = 4.3218MHz
Note 2) C210: Bit clock signal. f = 2.1168MHZ
Note 3) DATA: Audio signal serial data output

IC,CXA1081S

Pin No.	Pin Name	I/O	Description
1	RFI	I	The RF summing amplifier output is C-connected and input.
2	RFO	O	RF summing amplifier output. Eye pattern test point.
3	RF−	I	Inverting input of the RF summing amplifier. A feedback resistor is connected between pins 2 and 3.
4	P/N	I	Switches the input according to the polarity of the laser diode.
5	LD	O	Output to control the laser diode output.
6	PD	I	Connects the photo-detector which detects the laser diode output.
7	PD1	I	RFI-V amplifier (1) inverting input. Connected to PIN diode A + C for the current intput.
8	PD2	I	RFI-I amplifier (2) inverting input. Connected to PIN diode B + D for the current input.
9	VC	I	Reference voltage input within the IC. Connected to the ground with the positive and negative power supply.
10	F	I	FI-V amplifier inverting input. Connected to PIN diode F for the current input.
11	E	I	EI-V amplifier inverting input. Connected to PIN diode E for the current input.
12	EO	O	EI-V amplifier output. A feedback resistor is connected.
13	EI	I	Adjusts the EI-V amplifier gain.
14	VR	O	Outputs the neutral voltage. OPEN with positive and negative power supply.
15	CC2	O	Defect bottom hold (1) output. A capacitor is connected between pins 15 and 16.
16	CC1	I	The defect bottom (1) output is C-connected and input.
17	VEE	−	Grounded with the single power supply. Becomes a negative power supply with the positive and negative power supply.
18	FE BIAS	I	Inputs a bias voltage for the positive-phase input of the focus error amplifier.
19	FE	O	Focus error amplifier output.
20	TE	O	Tracking error amplifier output.
21	DEFECT	O	Defect detection output. Outputs the H" signal that detects a defect on the mirror surface.
22	MIRR	O	Mirror comparator output.
23	CP	O	A mirror hold capacitor is connected to this pin.
24	CB	O	The defect bottom hold (2) capacitor is connected to this pin.
25	DGND	−	Ground in the digital circuit.
26	ASY	I	Auto-symmetry control input.
27	EFM	O	EFM output comparator output.
28	FOK	O	Focus OK output.
29	$\overline{\text{LD ON}}$	I	Laser diode ON/OFF control input.
30	VCC	−	Positive power supply

IC,CXA1082S

Pin No.	Pin Name	I/O	Description
1	DVEE	–	-5V terminal.
2	DFCT	I	Interface input terminal for microcomputer.
3	TE	I	Tracking error signal input terminal.
4	TZC	I	Tracking zero-cross comparator input terminal.
5	ATSC	I	ATSC detection window comparator input terminal.
6	FE	I	Focus error signal input terminal.
7	VC	–	Connected to GND.
8	FG0	O	Capacitor is inserted between this pin and pin 9 to decrease the focus servo's high-frequency gain.
9	FS3	I	Focus servo's high-frequency gain is selected by FS3 on/off operation.
10	FLB	O	Time-constant external terminal for raising the focus servo's low-frequency range.
11	FEO	O	Power transistor drive's operational amplifier output terminal.
12	FE⊖	I	Focus amplifier inversion input terminal.
13	SRCH	O	Time-constant external terminal for forming a focus search wave.
14	TGU	O	Time-constant external terminal for tracking high-frequency gain selection.
15	TG2	O	Time-constant external terminal for tracking high-frequency gain selection.
16	AVCC	–	+5V terminal.
17	TAO	O	Tracking error signal output terminal.
18	TA⊖	I	Tracking amplifier's inversion input terminal.
19	SL⊕	I	Threading amplifier's noninversion input terminal.
20	SLO	O	Threading amplifier output terminal.
21	SL⊖	I	Threading amplifier's inversion input terminal.
22	SSTOP	I	On/off detection signal terminal of disc's innermost detection limit switch
23	FSET	I	Terminal for setting the focus tracking's phase compensation peak and CLV LPF (f0).
24	SENS	O	Outputs IC's internal state corresponding to data address (It is changed according to address of internal serial register.)
25	AVEE		-5V terminal.
26	C. OUT	O	Outputs signal for counting number of tracks in high-speed mode.
27	$\overline{\text{DIRCT}}$	I	Used in one-track jump. Normally "H". "L" when track jump pulse is inversed. Consequently "H" when normal tracking mode is set. "L" in a period when the rising and falling edges of TZC are detected. (Reserved)
28	$\overline{\text{RST}}$	I	"L" when all the internal register are cleared.
29	DATA	I	Serial data transmission from CPU. Input started from LSB.
30	$\overline{\text{XLT}}$	I	"L" when data of internal serial shift register is transmitted to the latch address-decoded.
31	CLK	I	DATA transmission clock. Data is taken in at the falling edge.
32	D GND	–	GND terminal.
33	BW	I	Loop filter's time-constant external terminal.
34	PDI	I	CXD1167Q phase comparator output PDO input terminal.

Pin No.	Pin Name	I/O	Description
35	ISET	I	Passes a current to determine the focus search, tracking jump, and threading kick height.
36 37	VCOF 3.5V	I O	VCO's free-running frequency is proportional to the resistance value between this pin and pin 37.
38	C864	O	8.64MHz VCO output terminal.
39	LOCK	I	Connected to the LOCK terminal of CXD1167Q.
40	MDP	I	CXD1167Q MDP connection terminal.
41	MON	I	CXD1167Q MON connection terminal.
42	FSW	I	LPF time-constant external terminal of CLV servo's error signal.
43	DVCC	—	+5V terminal
44	SPDL⊖	I	Spindle drive amplifier's inversion input terminal.
45	SPDLO	O	Spindle motor drive terminal.
46	WDCK	I	Word clock signal input terminal.
47	FOK	I	Focus OK signal input terminal.
48	MIRR	I	Mirror signal input terminal

IC, CXP5058H – 579Q

Pin No.	Pin Name	I/O	Description
1~15	Sa~So	O	Segment information for FL drive output.
16~28	G_1~G_{13}	O	Grid information for FL drive output.
29	PS	I	Shows the time at which data is read during peak search. "Low" when the peak search data is received.
30	XTAL	—	Crystal oscillator. (Not used.)
31	EXTAL	I	Microcomputer clock input.
32	$\overline{RST}$	I	Reset input. Reset when "low".
33, 43	NC	—	Not used.
34	VDD	—	+5V terminal.
35	RANDOM	I	Random play input. "High" during random play.
36	MEMORY	I	Program timer play input. "High" during program timer play.
37	C REC	I	Output indicating that cassette deck is in REC mode. "High" when the cassette deck is in REC mode.
38	$\overline{N}$/H	I	Switch of normal-speed play or double-speed play. Normal-speed play when "low". (connected to GND.)
39	MD0	I/O	I/O for servo control microcomputer IC601.
40	MD1	I/O	
41	MD2	I/O	
42	MD3	I/O	
44	$\overline{DTX}$	I	DTX goes "low" when the power is off. Data (program in timer play) is sent to RAM IC603.
45	(I)	I	Not used.

Pin No.	Pin Name	I/O	Description
46	MACK	I	ACK signal received in response to M.MREQ signal from servo control microcomputer IC601.
47	M. W/$\overline{R}$	O	Trigger signal for data transmissions to servo control microcomputer IC601.
48	M. MREQ	O	M.MREQ signal output to servo control microcomputer.
49	$\overline{PS}$	O	Not used.
50	F. MREQ	O	F.MREQ signal output to CSRS control microcomputer IC602.
51	$\overline{HSSW}$	I	Not used.
52	$\overline{PSSW}$	I	Not used.
53	ASET	I	Signal output to main control microcomputer IC801 after the signals for DA12 to DA16 are compared and the peak is detected. Peak detection signal when "low".
54	ACK	I	ACK signal received in F.MREQ signal from CSRS/DISC file control microcomputer IC602.
55	FD0	I/O	I/O for CSRS/DISC file control microcomputer IC602.
56	FD1	I/O	
57	FD2	I/O	
58	FD3	I/O	
59	$\overline{W}$/R	O	Trigger signal for data transmissions to CSRD/DISC file control microcomputer IC602.
60	(O)	—	Connected to GND.
61	(I)	—	
62	S. RMC	I	Remote control signal input (serial data).
63	KR4	I	Key matrix data input.
64	KR3	I	
65	KR2	I	
66	KR1	I	
67	KS1	O	Key matrix data output.
68	KS2	O	
69	KS3	O	
70	KS4	O	
71	Vss	—	-5V terminal. Connected to GND.
72	TX	—	Not used.
73	NC	—	
74	TEX	—	Connected to VDD.
75	VREF	—	
76	VFDP	—	Connected to VP line.
77	KS5	O	Key matrix data output.
78	KS6	O	
79	KS7	O	
80	KS8	O	

IC,CXP5034H – 087S

Pin No.	Pin Name	I/O	Description
1	SQCK	O	Sub-code Q read clock output. Connected to SQCK of CXD1167Q (DSP).
2	$\overline{N}$/H	I	Normal speed when "low". High speed when "high". Connected to GND (low level)
3	GFS	I	Frame sync lock input. Locked when "high". Connected to GFS terminal of CXD1167Q (DSP).
4	SUB-Q	I	Sub-code Q serial data input. Connected to SUBQ of CXD1167Q (DSP).
5	MUTE	O	Muting output for CXD1167Q (DSP). Connected to MUTE of CXD1167Q (DSP).
6	DATA	O	Transmitted serial data output to CXA1082 (SSP) and CXD1167Q (DSP). Connected to DATA of CXA1082 (SSP) and CXD1167Q (DSP).
7	$\overline{XLT}$	O	Latched output of serial data transmitted to CXA1082 (SSP) and CXD1167Q(DSP). Connected to CLK of CXA1082 (SSP) and CXD1167Q (DSP).
8	CLK	O	Serial data transmission clock output sent to CXA1082 (SSP) and CXD1167Q (DSP). Connected to CXA1082 (SSP) and CXD1167Q (DSP).
9	$\overline{2SPD}$	O	"Low" when N/H is "high". (Not used.)
10	2SPD	O	"High" when N/H is "high". (Not used.)
11	EMP	O	"High" when emphasis ON/OFF is ON. (Not used.)
12	$\overline{EMP}$	O	"Low" when emphasis ON/OFF is ON. (Not used.)
13	$\overline{AMUT}$	O	Analog muting output. "Low" when mute is on. (Not used.)
14	$\overline{DMUT}$	O	Digital muting output. "Low" when mute is on. (Not used.)
15	$\overline{LDON}$	O	Laser diode control output. Laser diode lights when "low" and RF amplifier LDON is connected.
16	CREC	I	Output indicating that the cassette deck is in REC mode.
17	$\overline{SYNC1}$	I/O	Synchro-operation I/O. "Low" output when the cassette is in PLAY mode; input at all other times.
18	$\overline{SYNC2}$	I	Synchro-operation input.
19	$\overline{ISW}$	I	Switch detecting if the disc tray is closed "Low" when the disc tray is closed.
20	$\overline{OSW}$	I	Switch detecting if the disc tray is open. "Low" when the disc tray is opened.
21	VSS	I	Connected to GND.
22	CLOSE	O	Output to close the disc tray. "Low" when the disc tray is closing.
23	OPEN	O	Output to open the disc tray. "High" when the disc tray is opening.
24	RMUT	O	Synchro-operation sent to deck. REC MUTE signal output. (Not used.)
25	RPAUSE	O	Synchro-operation sent to deck. REC PAUSE signal output. (Not used.)
26	MD0	I/O	Data I/O for master microcomputer (CXP-5058H).
27	MD1	I/O	
28	MD2	I/O	
29	MD3	I/O	
30	$\overline{RMODE}$	I	Synchro-operation received from deck. "Low" when the deck is in REC mode. (Connected to VDD.)

Pin No.	Pin Name	I/O	Description
31	M. W/$\overline{R}$	I	Trigger signal input for data transmission with the master microcomputer (CXP5058H). Data (MD0 to MD3) from the master microcomputer is read when "high". Data (MD0 to MD3) is sent to the master microcomputer when "low".
32	M. MREQ	I	When data (MD0 to MD3) is transmitted from the master microcomputer (CXP5058H), data is read at the falling and rising edge. When data is transmitted to the master microcomputer, an ACK signal is received from the master microcomputer.
33	$\overline{ADJ}$	I	Switch for adjusting pick-up. Enters adjust mode when connected to GND.
34	XTAL	O	Not used.
35	EXTAL	I	4.2 MHz clock input.
36	$\overline{RST}$	I	Reset input. Reset when "low".
37	SCOR	I	Subcode S0 + S1 input. Interrupted at leading edge and connected to SCOR of CXD1167Q (DSP).
38	PDE	O	Switches data from CXD1167Q (DSP) to parallel or serial. The data ouput (DA12 to DA16) is parallel when "high".
39	MACK	O	ACK signal output when data (MD0 to MD3) is transmitted from the master microcomputer (CXP5058H). The master microcomputer reads data at the falling and rising edge when data (MD0 to MD3) is transmitted.
40	FOK	I	Focus OK signal received from RF amplifier. Connected to FOK of the RF amplifier.
41	SENS	I	Sense input. Connected to SENS of CXD1167Q (DSP).
42	VDD	I	Power supply

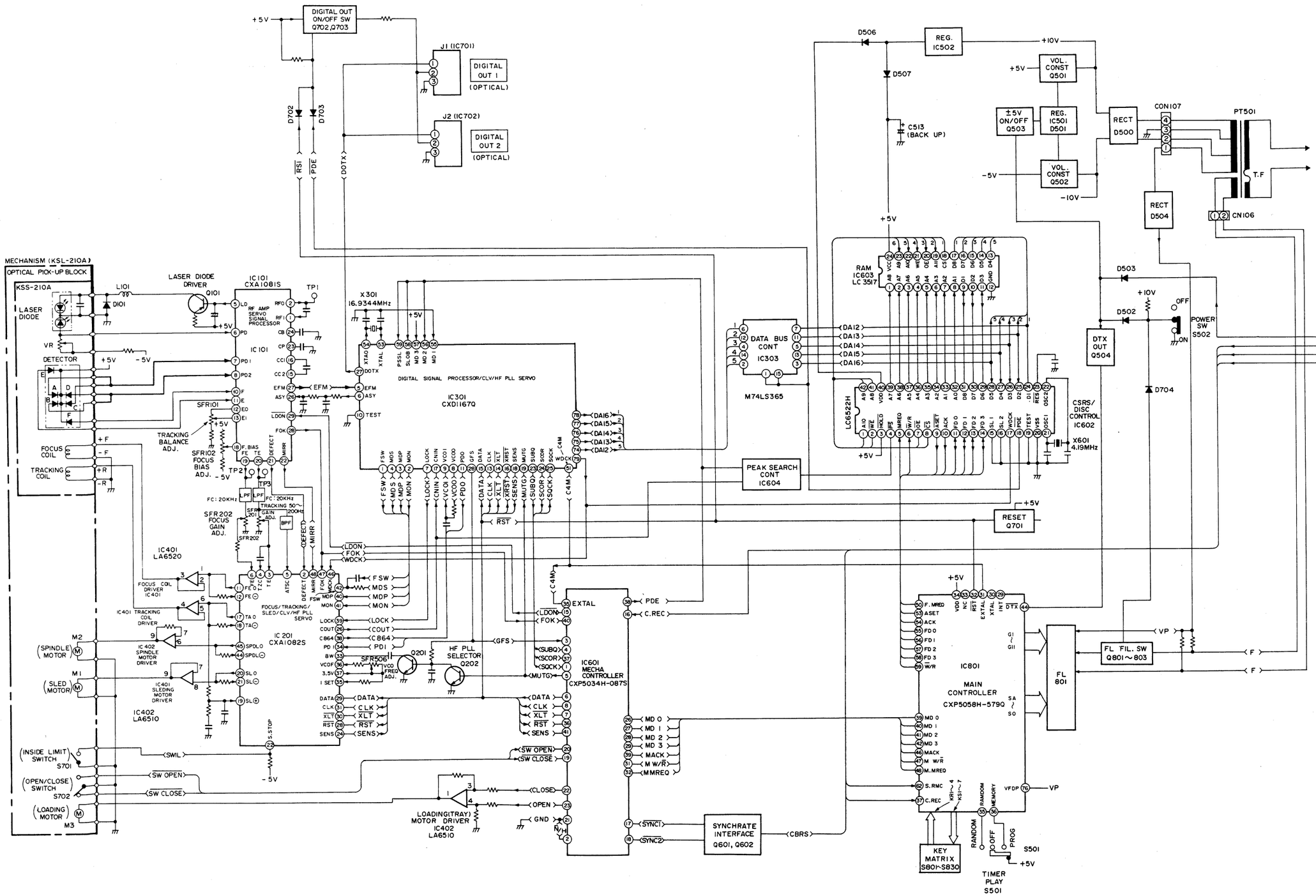
IC, LC6522H – 3923

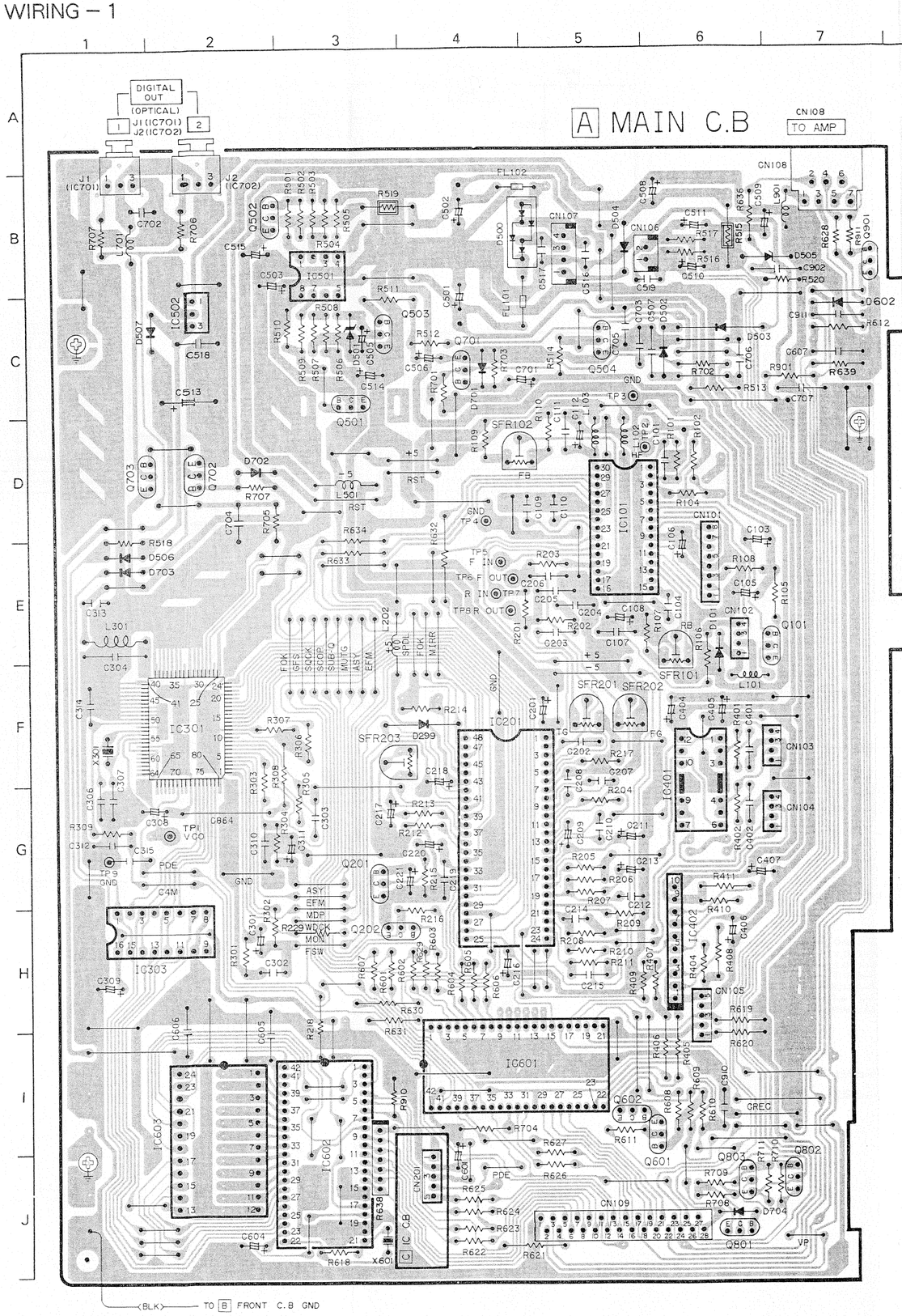
Pin No.	Pin Name	I/O	Description
1	A10	O	Address signal output to external RAM (2^{10}).
2	$\overline{WE}$	O	WRITE ENABLE signal output to external RAM.
3	$\overline{HOLD}$	I	Input terminal for deciding whether the PHOLD command is to be transmitted or not. Transmits when "low". (Connected to VDD.)
4	$\overline{PS}$	I	Shows the time at which the data in DA12 to DA16 is read in during peak search. Read when "low".
5	MREQ	I	When data (FD0 to FD3) is transmitted from the master microcomputer (CXP5058H), Data is read at the falling and rising edge. When data is transmitted to the master microcomputer, an ACK signal is received from the master microcomputer.
6	R/$\overline{W}$	I	Trigger signal input for data transmissions with the master microcomputer. Data (FD0 to FD3) from the master microcomputer is read when "low". Data (FD0 to FD3) is sent to the master microcomputer when "high".
7	$\overline{OE}$	O	OUTPUT ENABLE signal output to external RAM.
8	$\overline{CS}$	O	CHIP SELECT signal output to external RAM.
9	$\overline{ASET}$	O	A peak detection signal (low pulse) is output to the master microcomputer (CXP5058H) after parallel data (DA12 to DA16, 5-high-order bits) for the playback sigal during peak search is compared and a peak is detected. The master microcomputer records SUB-Q data at this time.

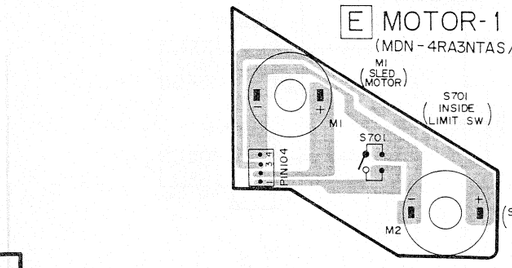
Pin No.	Pin Name	I/O	Description
10	ACK	O	ACK signal outputs when data (FD0 to FD3) is transmitted from the master microcomputer (CXP5058H). The master microcomputer reads data at the falling and rising edge when data (FD0 to FD3) is transmitted.
11	FD0	I/O	Data I/O for master microcomputer (CXP5058H).
12	FD1	I/O	
13	FD2	I/O	
14	FD3	I/O	
15	SL1	I	When hold input is "low", the peak level at which a PHOLD command is to be transmitted is set. Connected to GND.
16	SL2	I	
17	WDCK	I	Clock input during peak search. Digital search = 88.2kHz.
18	$\overline{PDE}$	O	Output signal to select external RAM data line or peak search parallel data. Peak search parallel data (DA12 to DA16) is selected when "low".
19	TEST	—	Connected to GND.
20	VSS	—	Connected to GND.
21	OSC1	I	Crystal oscillator terminal.
22	OSC2	I	Crystal oscillator terminal.
23	$\overline{RES}$	I	Reset input terminal.
24	D1	I/O	Data I/O for external RAM and peak search data input.
25	D2	I/O	
26	D3	I/O	
27	D4	I/O	
28	D5	I/O	
29	D6	I/O	Data I/O for external RAM.
30	D7	I/O	
31	D8	I/O	
32	A0	O	Address signal for external RAM. 2^0
33	A1	O	2^1
34	A2	O	2^2
35	A3	O	2^3
36	A4	O	2^4
37	A5	O	2^5
38	A6	O	2^6
39	A7	O	2^7
41	A8	O	2^8
42	A9	O	2^9
40	VDD	—	Power supply.

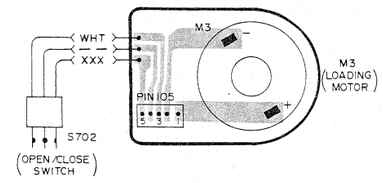
SL1	L	H	L	H
SL2	L	L	H	H
	-3dB	-2dB	-1dB	0dB

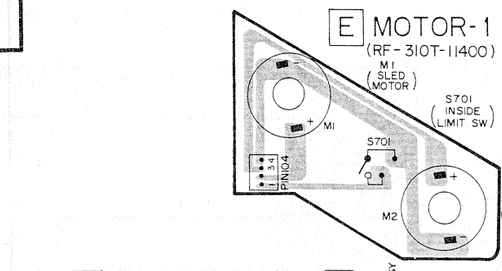
BLOCK DIAGRAM

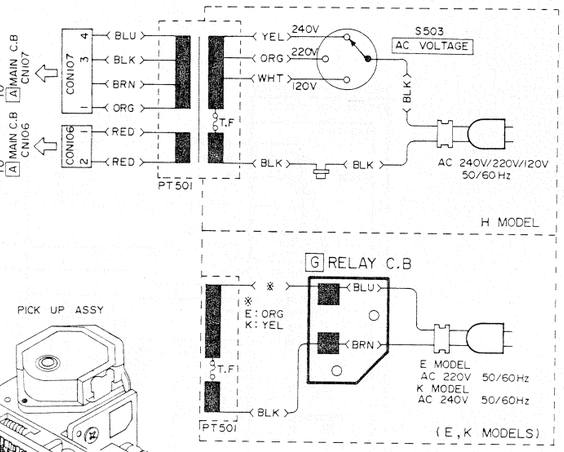


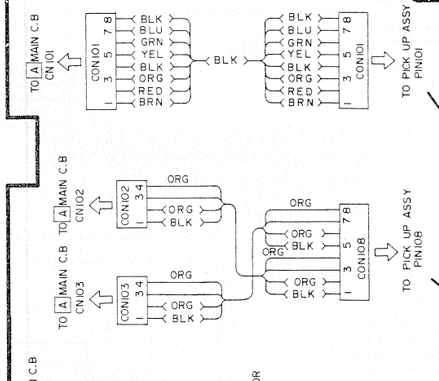


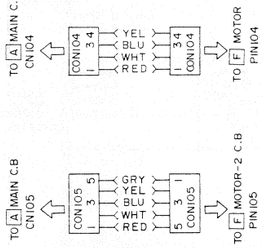


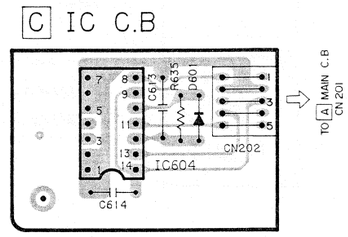








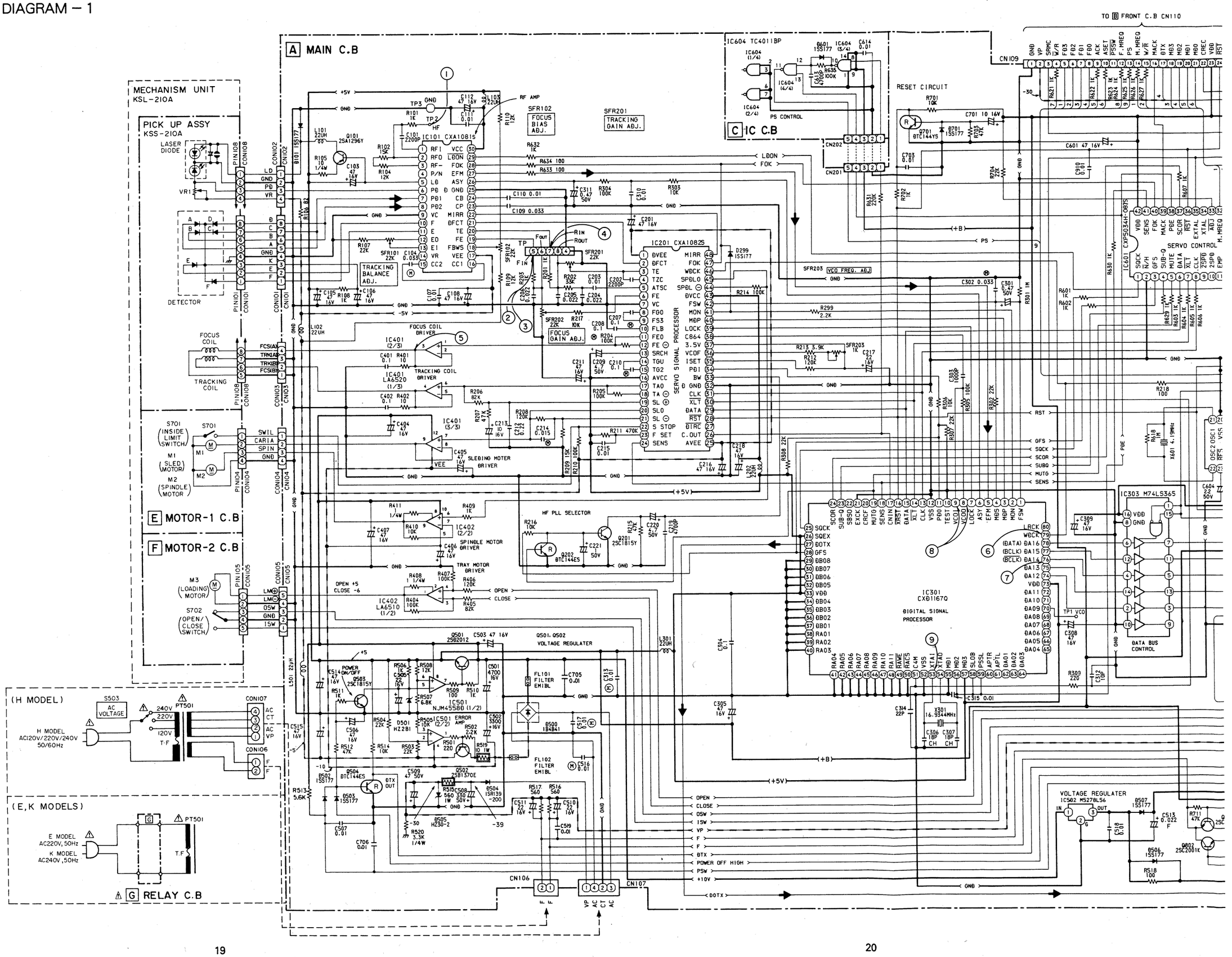


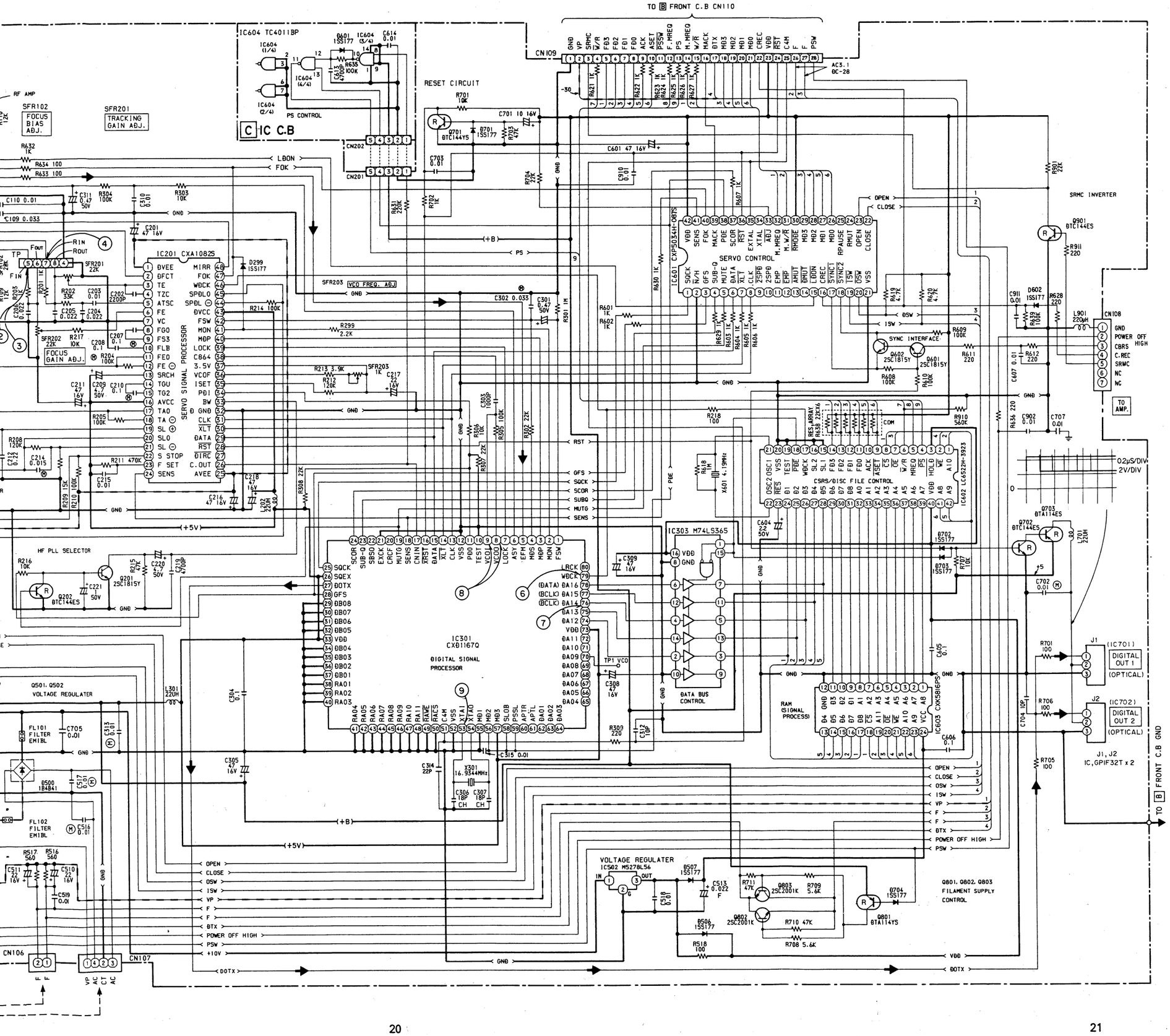


GRAPHIC SYMBOLS PRINTED CIRCUIT BOARD OF ELECT. CAP. ARE DESIGNED AS NEGATIVE POLE.

（プリント基板内のケミコンの極性表示はθ表示です。）

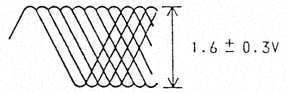
SCHEMATIC DIAGRAM – 1




TO B FRONT C.B CN110
CN109
GND VP SRMC W/R FB3 FB2 FB1 FB0 ACK ASET PSSW F.MREQ PS M.MREQ W/R MACK DTX MD3 MD2 MD1 MD0 CREC VDD RST C4M F. F. PSW
AC5.1 DC-28
IC604 TC4011BP
IC604 (1/4)
IC604 (2/4)
IC604 (3/4)
IC604 (4/4)
D601 1SS177
C614 0.01
C617 4700P
R635 100K
PS CONTROL
C IC C.B
RESET CIRCUIT
R701 10K
Q701 DTC144YS
D701 1SS177
C701 10 16V
R702 47K
CN202
CN201
C703 0.01
C601 47 16V
C310 0.01
R704 22K
R607 1K
R631 220K
R702 1K
SFR102 FOCUS BIAS ADJ.
SFR201 TRACKING GAIN ADJ.
R632 1K
R634 100
R633 100
LBON
FOK
C110 0.01
C109 0.033
C311 0.47 50V
R304 100K
R303 10K
C201 47 16V
(+B)
PS
SERVO CONTROL
IC601 CXP50364P-080S
OPEN
CLOSE
R630 1K
R623 1K
R603 1K
R604 1K
R605 1K
R606 1K
R601 1K
R602 1K
R420 4.7K
R419 4.7K
OSW
ISW
SYNC INTERFACE
Q602 2SC1815Y
Q601 2SC1815Y
R608 100K
R609 100K
R611 220
R610 100K
SRMC INVERTER
Q901 DTC144ES
R911 220
R901 22K
C911 0.01
D602 1SS177
R628 220
R627 100K
L901 220µH
CN108
GND
POWER OFF HIGH
CBRS
C.REC
SRMC
NC
NC
TO AMP.
IC201 CXA1082S
SERVO SIGNAL PROCESSOR
DVEE DFCT TE TZC ATSC FE VC FGO FS3 FLB FEO FE SRCH TGU TG2 AVCC TAO TA SL SLO SL S STOP F SET SENS
MIRR FOK WDCK SPDLO SPDL DVCC FSW MON MDP LOCK C864 3.5V VCOF ISET PDI BW B GND CLK XLT DATA RST DIRC C.OUT AVEE
D299 1SS177
SFR203 VCO FREQ. ADJ
C302 0.033
C301 0.47 50V
R301 1M
R214 100K
R299 2.2K
R213 3.9K
R212 120K
SFR203 1K
C217 22 16V
SFR201 22K
SFR202 22K
R217 10K
FOCUS GAIN ADJ.
C202 2200P
C203 0.01
C205 0.022
C204 0.022
C207 0.1
C208 0.1
R204 100K
C209 4.7 50V
C210 0.1
C211 47 16V
R205 100K
R208 120K
C212 0.22
C214 0.015
R211 470K
C215 0.01
R209 15K
R210 100K
C218 47 16V
C216 47 16V
L202 22UH
R308 22K
C303 1000P
R305 100K
R306 10K
R307 22K
R302 22K
RST
GFS
SQCK
SCOR
SUBQ
MUTG
SENS
PDE
R218 100
X601 4.19MHz
RES.ARRAY R638 22Kx6
COM
CSRS/DISC FILE CONTROL
IC602 LC6522M-5923
C604 22 50V
IC303 M74LS365
C309 47 16V
R309 220
C312 0.01
C315 0.01
C314 22P
X301 16.9344MHz
C306 18P CH
C307 18P CH
IC301 CX81167Q
DIGITAL SIGNAL PROCESSOR
DATA BUS CONTROL
RAM (SIGNAL PROCESS)
IC603 CXK5816PS
C605 0.1
C606 0.1
R910 560K
R636 220
C902 0.01
C707 0.01
C607 0.01
R612 220
C704 100P
R706 100
R705 100
R701 100
J1 (IC701) DIGITAL OUT 1 (OPTICAL)
J2 (IC702) DIGITAL OUT 2 (OPTICAL)
J1, J2 IC,GP1F32T x 2
0.2µS/DIV 2V/DIV
Q703 DTA114ES
Q702 DTC144ES
D702 1SS177
R702 100K
D703 1SS177
R707 10K
C702 0.01
L701 220H
TO B FRONT C.B GND
HF PLL SELECTOR
R216 10K
Q202 DTC144ES
R215 2.2K
Q201 2SC1815Y
C221 50V
C220 2.2 50V
C219 4700P
SQCK SQEX DOTX GFS DB08 DB07 DB06 DB05 VDD DB04 DB03 DB02 DB01 RA01 RA02 RA03
LRCK WDCK (DATA) DA16 (BCLK) DA15 (BCLK) DA14 DA13 DA12 VDD DA11 DA10 DA09 DA08 DA07 DA06 DA05 DA04
RA04 RA05 RA06 RA07 RA08 RA09 RA10 RA11 RAWE RAC5 C4M VSS XTAI XTAO MD1 MD2 MD3 SLOB PSSL APTR APTL DAO1 DAO2 DAO3
Q501, Q502 VOLTAGE REGULATER
L301 22UH
C304 0.1
FL101 FILTER EMI8L
C705 0.01
C313 0.01
D500 1B4B41
C517 0.01
FL102 FILTER EMI8L
C516 0.01
C305 47 16V
(+B)
(+5V)
R517 560
R516 560
C511 22 16V
C510 22 16V
C519 0.01
GND
OPEN
CLOSE
OSW
ISW
VP
F
F
DTX
POWER OFF HIGH
PSW
+10V
DOTX
CN106
CN107
F F
VP AC CT AC
VOLTAGE REGULATER
IC502 M5278L56
D507 1SS177
C513 0.022 F
C518 0.01
D506 1SS177
R518 100
R711 47K
Q803 2SC2001K
R709 5.6K
Q802 2SC2001K
R710 47K
R708 5.6K
Q704 1SS177
Q801 DTA114YS
Q801, Q802, Q803 FILAMENT SUPPLY CONTROL
VDD
DOTX

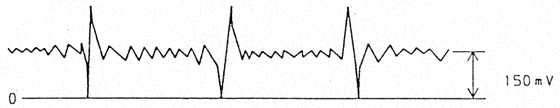
WAVE FORM

①



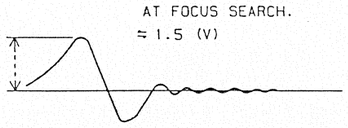
VP-P SHOULD BE APPROX. 1.4X.
WHEN PLAYING TRACK-2 OF YEDS-18.

②

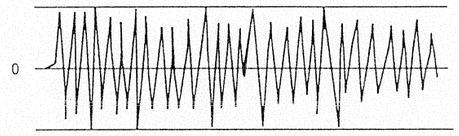


200mV/DIV
2mS/DIV

③

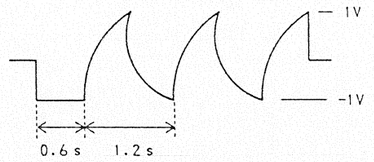


④

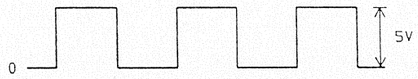


500mV/DIV
1mS/DIV

⑤ (WHEN VDD ON WITHOUT DISC AND TRAY IS CLOSED.)



⑥



88.2KHZ

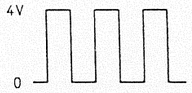
2V/DIV
5US/DIV

⑦

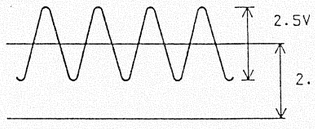
2.1168MHZ

2V/DIV
0.2US/DIV

⑧



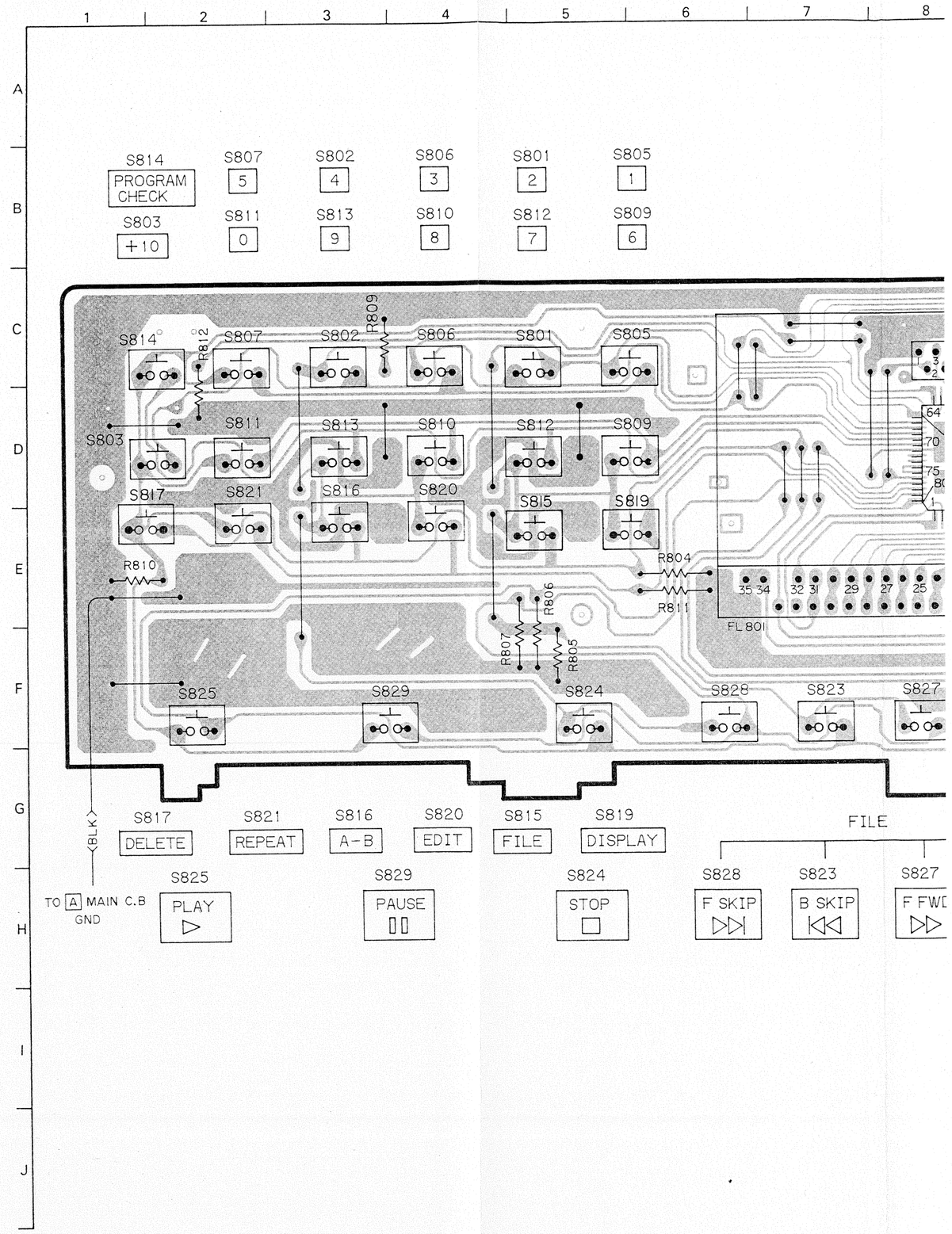
⑨



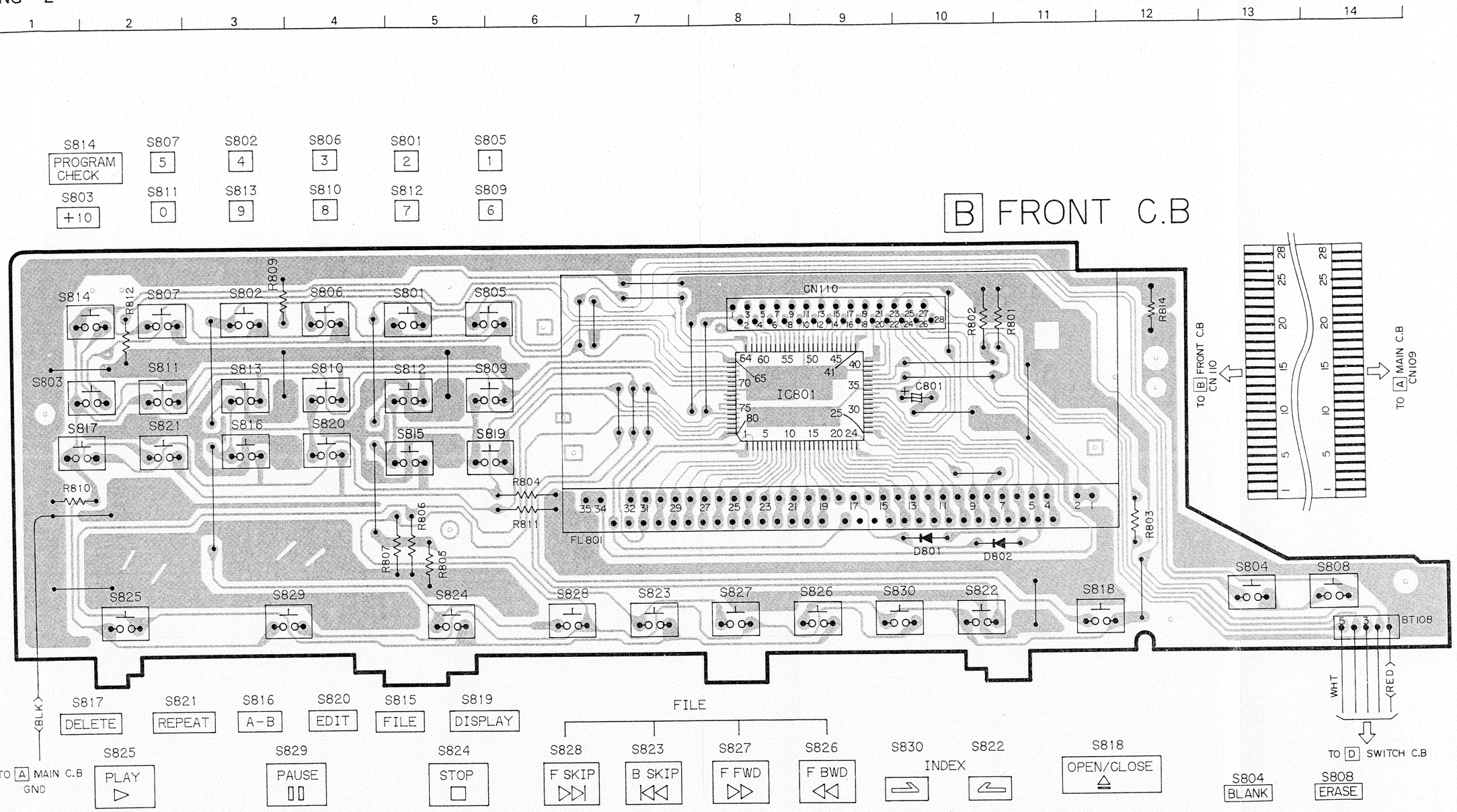
16.9344MHZ

1V/DIV
0.1US/DIV

WIRING – 2



B FRONT C.B

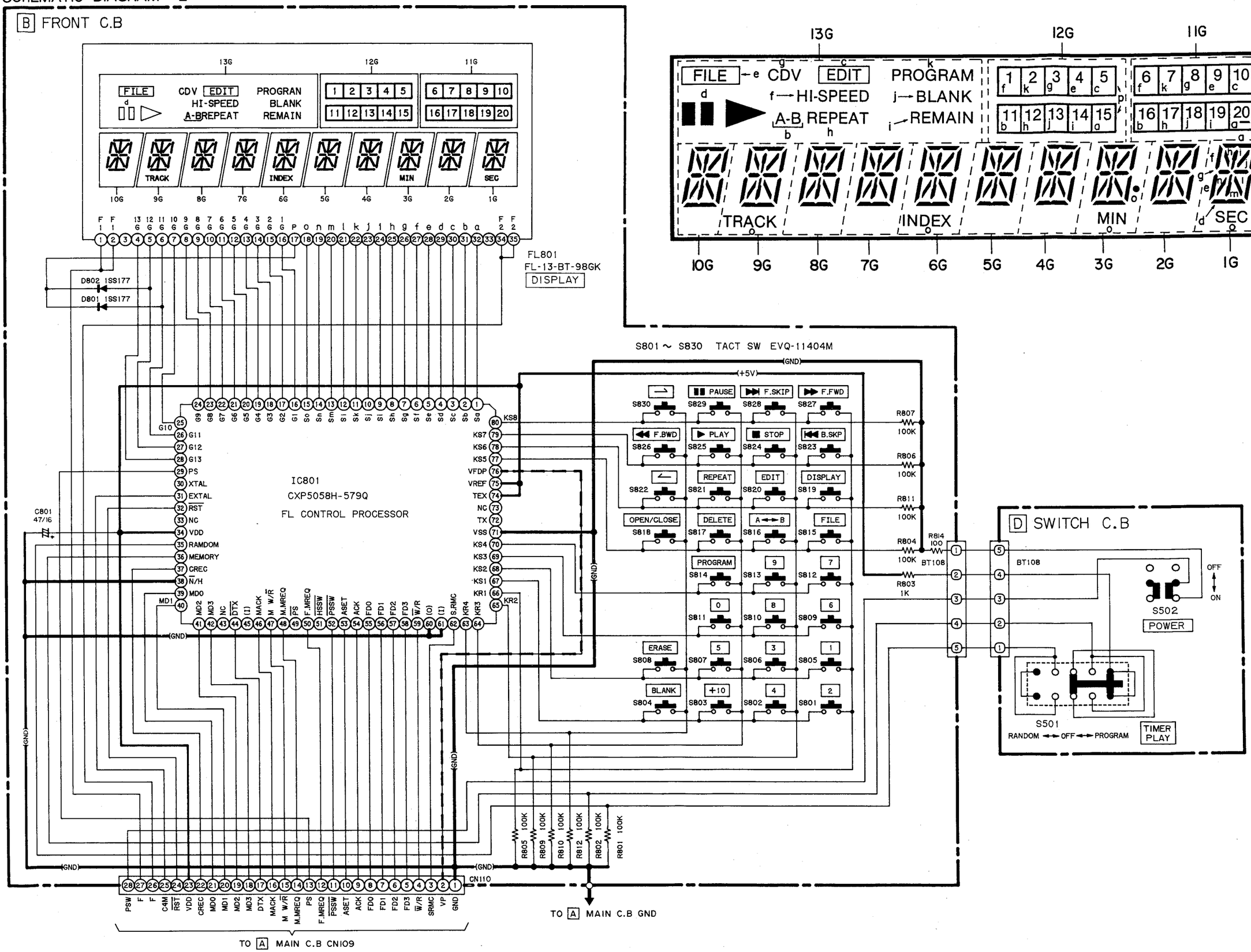


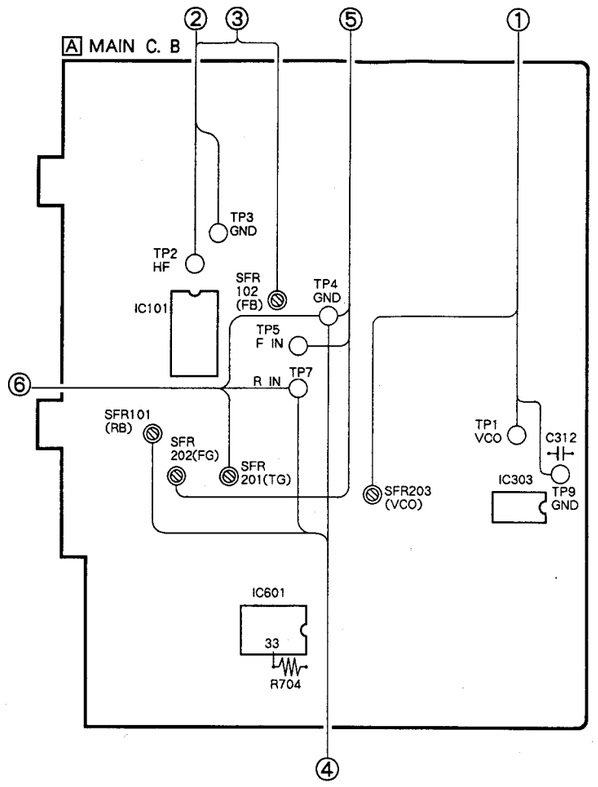
GRAPHIC SYMBOLS PRINTED CIRCUIT BOARD OF ELECT. CAP. ARE DESIGNED AS NEGATIVE POLE.

（プリント基板内のケミコンの極性表示はθ表示です。）

SCHEMATIC DIAGRAM – 2

B FRONT C.B





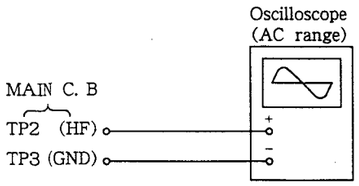
Note : Connect probe (10 : 1) of frequency counter and oscilloscope to test point.

① VCO Frequency Adjustment

1. Open the tray using the OPEN/CLOSE button.
2. Connect of frequency counter to TP1 (VCO), TP9 (GND).
3. Adjust SFR203 (VCO) so that the frequency counter reading is 4.93 ± 0.02MHz.

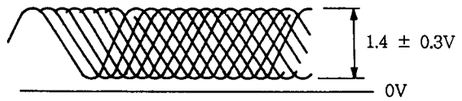
② HF Vp-p Adjustment

Make the HF Vp-p adjustment when replacing and repairing the optical block.



1. Connect an oscilloscope to TP2 (HF), TP3 (GND).
2. Connect 33 terminals of IC601 (R704) on the main circuit board to GND.
3. Insert the disc YEDS-18 (YEDS-1) and play back the first track.
4. Adjust SFR in pickup so that the waveform on the oscilloscope is as shown in the figure below.

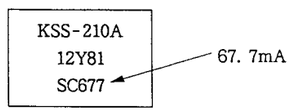
RF signal waveform



VOLT/DIV : 20mV
TIME/DIV : 0.5 μ s

5. After adjustment is completed, remove the ground lead wire.

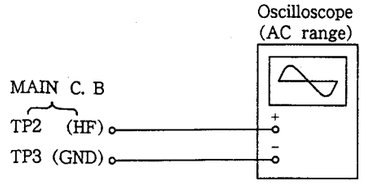
Note : The laser current can be checked using the voltage at both sides of R105 (10 Ω).
± 6.0mA should be supplied with respect to the current value on the label of the back of the laser pick-up.



$$\text{Laser current Iop} = \frac{\text{Voltage at both sides of R105}}{10\ \Omega}$$

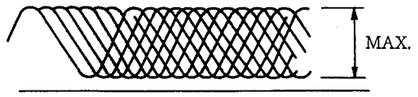
③ Focus Bias Adjustment

Make the focus bias adjustment when replacing and repairing the optical block.



1. Connect an oscilloscope to TP2 (HF), TP3 (GND).
2. Connect 33 terminals of IC601 (R704) on the main circuit board to GND.
3. Turn on the power switch.
4. Insert the disc YEDS-18 (YEDS-1) and play back the first track.
5. Adjust SFR102 (F.B) to make clear and maximize the waveform, diamond shapes (◇) can be distinguished in the center of the waveform.

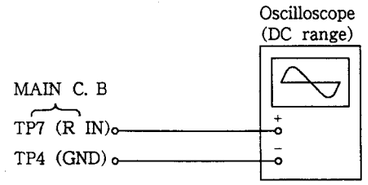
RF signal waveform



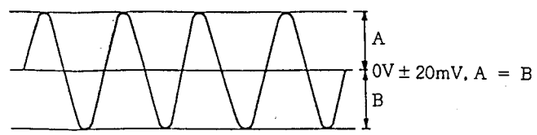
VOLT/DIV : 20mV
TIME/DIV : 0.5 μ S

6. After adjustment is completed, remove the ground lead wire.

④ Tracking Balance Adjustment



1. Connect an oscilloscope to TP7 (R IN), TP4 (GND).
2. Connect 33 terminals of IC601 (R704) on the main circuit board to GND. Connect a center of SFR201 (TG) to GND.
3. Turn on the power switch.
4. Insert the disc YEDS-18 (YEDS-1) and press the PLAY button.
5. Adjust SFR101 (RB) so that the waveform on the oscilloscope is vertically symmetrical as shown in the figure below.



VOLT/DIV : 20mV
TIME/DIV : 0.5mS

6. After adjustment is completed, remove the ground lead wire.

⑤⑥ Focus/Tracking Gain Adjustment

A frequency response analyzer is necessary in order to perform this adjustment exactly.
However, this gain has a margin, so even if it is slightly off, there is no problem. Therefore, do not perform this adjustment.
Focus/tracking gain determines the pick-up follow-up (vertical and horizontal) relative to mechanical noise and mechanical shock when the 2-axis device operate. However, as these reciprocate, the adjustment is at the point where both are satisfied.

- When gain is raised, the noise when the 2-axis device operates increases.
- When gain is lowered, it is more susceptible to mechanical shock and skipping occurs more easily.
- When gain adjustment is off, the sympotoms below appear.

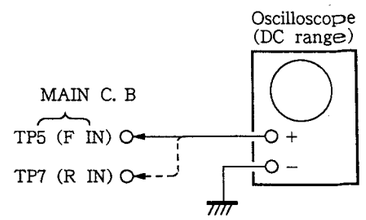
Symptoms \ Gain	Focus	Tracking
● The time until music starts becomes longer for STOP → PLAY or automatic selection (⏮, ⏭ buttons pressed.) (Normally takes about 2 seconds.)	low	low or high
● MUSIC does not start and disc continues to rotate for STOP → ▷PLAY or automatic selection (⏮, ⏭ buttons pressed.)	–	low
● Disc table opens shortly after STOP→▷PLAY.	low or high	–
● Sound is interrupted during PLAY. Or time counter display stops progressing.	–	low
● More noise during 2-axis device operation.	high	high

The following is a simple adjustment method.

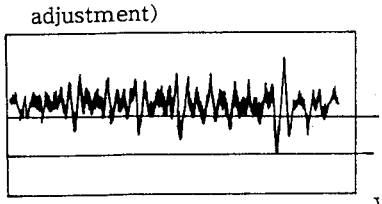
– Simple Adjsutment –

Note : Since exact adjsutment cannot be performed, remember the positions of the controls before performing the adjustment. If the positions after the simple adjsutment are only a little different, return the controls to the original position.

Procefure :



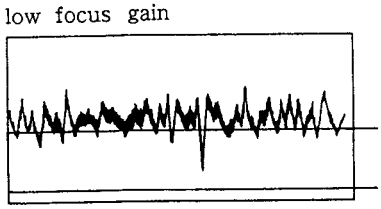
1. Keep the set horizontal.
   If the set is not horizontal, this adjustment cannot be performed due to the gravity against the 2 axis device.
2. Insert the disc YEDS-18 (YEDS-1) and play back the first track.
3. Connect an oscilloscope to Main circuit board TP5 (F IN)
4. Adjustment SFR202 (FG) so that the waveform is as shown in the figure below. (focus gain adjustment)



VOLT/DIV : 10mV
TIME/DIV : 2mS

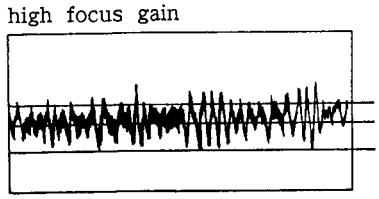
● Incorrect Examples (DC level changes more than on-adjusted waveform)

low focus gain



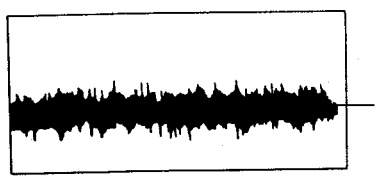
VOLT/DIV : 10mV
TIME/DIV : 2mS

high focus gain



VOLT/DIV : 10mV
TIME/DIV : 2mS

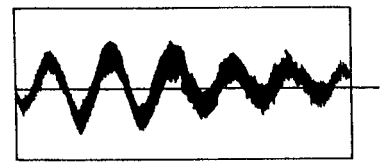
5. Connect an oscilloscope to Main circuit board TP7 (R IN).
6. Adjust SFR201 (TG) so that the waveform is as shown in the figure below. (tracking gain adjustment)



VOLT/DIV : 50mV
TIME/DIV : 2mS

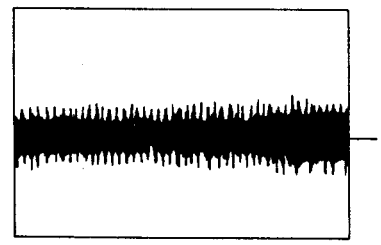
● Incorrect Example (fundamental wave appears)

low tracking gain



VOLT/DIV : 50mV
TIME/DIV : 2mS

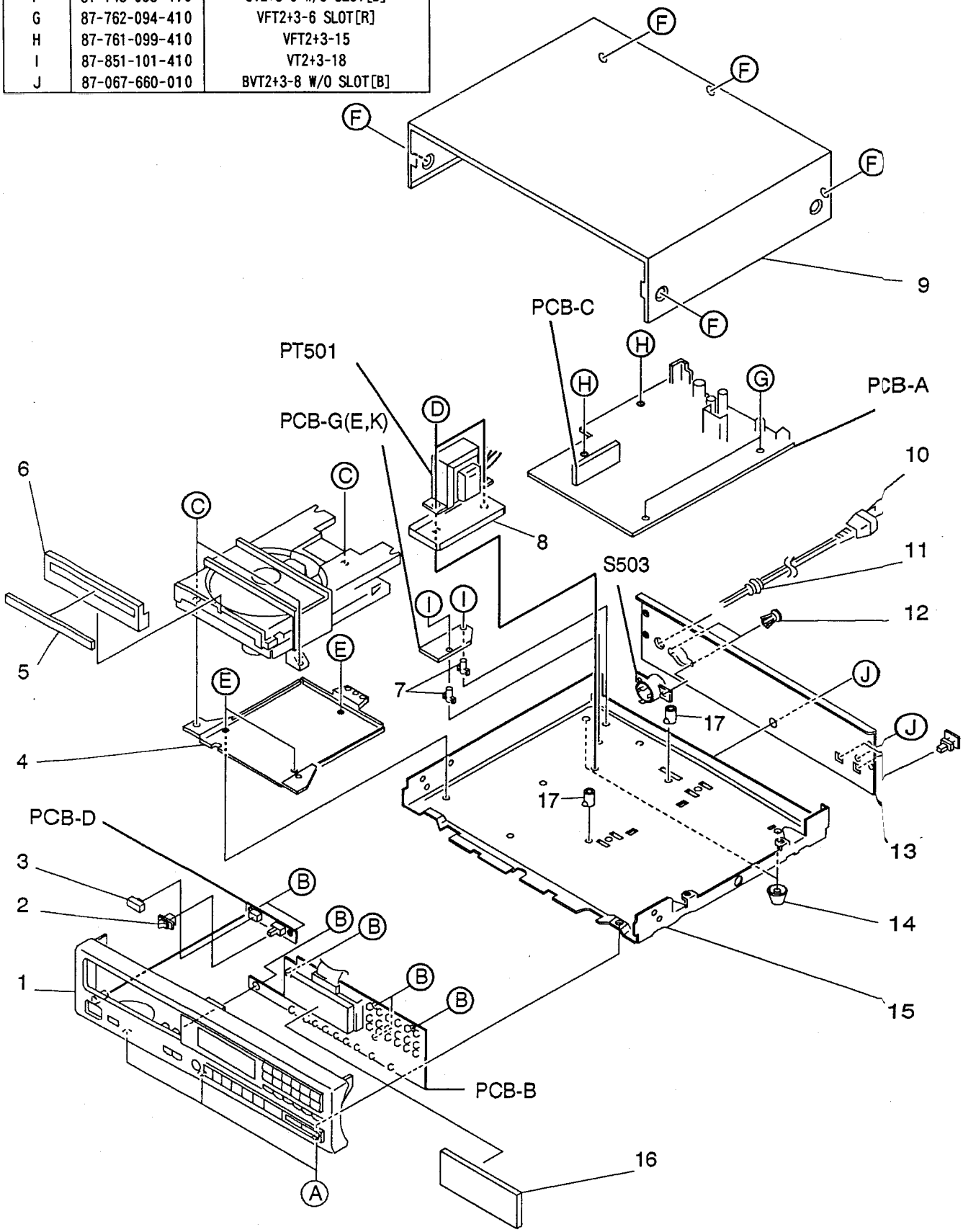
high tracking gain
(higher fundamental wave than for low gain)



VOLT/DIV : 50mV
TIME/DIV : 2mS

EXPLODED VIEW – 1

REF. NO	PART NO.	DESCRIPTION
A	87-571-094-410	VTT+3-6[B]
B	87-652-074-410	VT1+2.6-8[R]
C	87-067-566-010	VFTT+3-6
D	87-761-094-410	VFT2+3-6 W/O SLOT
E	87-591-095-410	QIT+3-8
F	87-743-095-410	UT2+3-8 W/O SLOT[B]
G	87-762-094-410	VFT2+3-6 SLOT[R]
H	87-761-099-410	VFT2+3-15
I	87-851-101-410	VT2+3-18
J	87-067-660-010	BVT2+3-8 W/O SLOT[B]

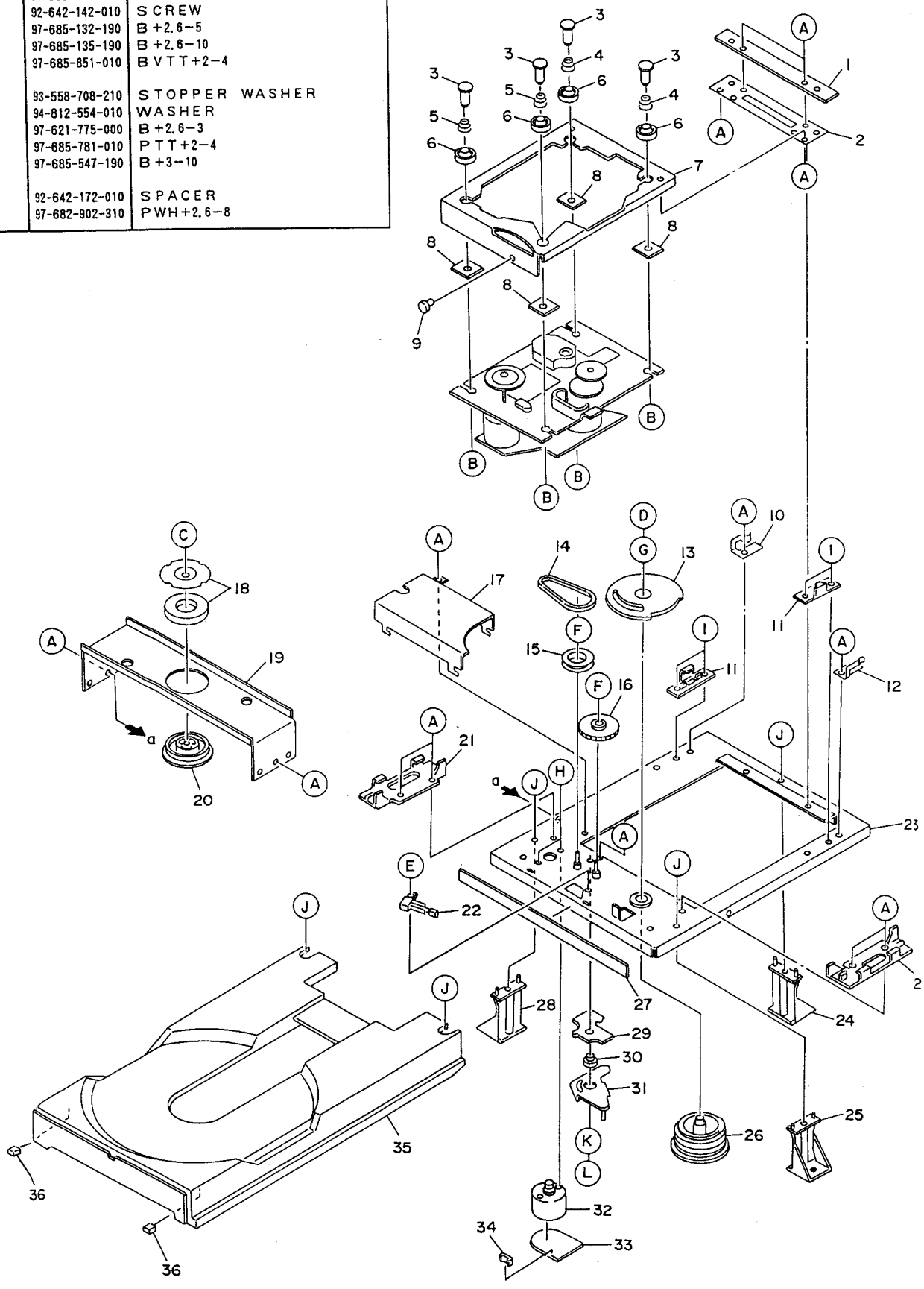


MECHANICAL PARTS LIST

PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q,TY
	1-1	★ 09-057-086-010	CABINET FRONT ASSY	※	1
	1-2	★ 81-670-013-010	KNOB, SLIDE		1
	1-3	★ 81-666-010-010	PUSH – BUTTON, CD		1
	1-4	★ 81-666-205-010	HOLDER, MECHANISM 1		1
	1-5	★ 81-VX2-009-010	PANEL, CD	※	1
	1-6	★ 81-VX2-002-010	JOINT, CD	※	1
	1-7	★ 81-670-214-010	HOLDER, PCB (E,K)		2
	1-8	★ 81-666-206-010	FRAME, P.T		1
	1-9	★ 81-666-015-010	CABINET, STEEL		1
	1-10	★ 87-034-757-010	CORD, AC (H)		1
	1-10	★ 87-034-756-010	CORD, AC (E)		1
	1-10	★ 87-034-764-010	CORD, AC (K)		1
	1-11	★ 81-085-184-010	AC CORD, BUSHING (H)		1
	1-11	★ 81-085-185-010	AC CORD, BUSHING (E,K)		1
	1-12	- - -	RIVET NYLON (H)		2
	1-13	★ 81-VX2-010-010	PANEL, REAR (H)	※	1
	1-13	★ 81-VX2-011-010	PANEL, REAR (E)	※	1
	1-13	★ 81-VX2-012-010	PANEL, REAR (K)	※	1
	1-14	★ 81-675-010-010	FOOT ASSY		2
	1-15	- - -	CHASSIS, AMP		1
	1-16	★ 81-666-012-010	FILTER, FL		1
	1-17	★ 81-664-202-010	HOLDER, PCB		2

EXPLODED VIEW – 2

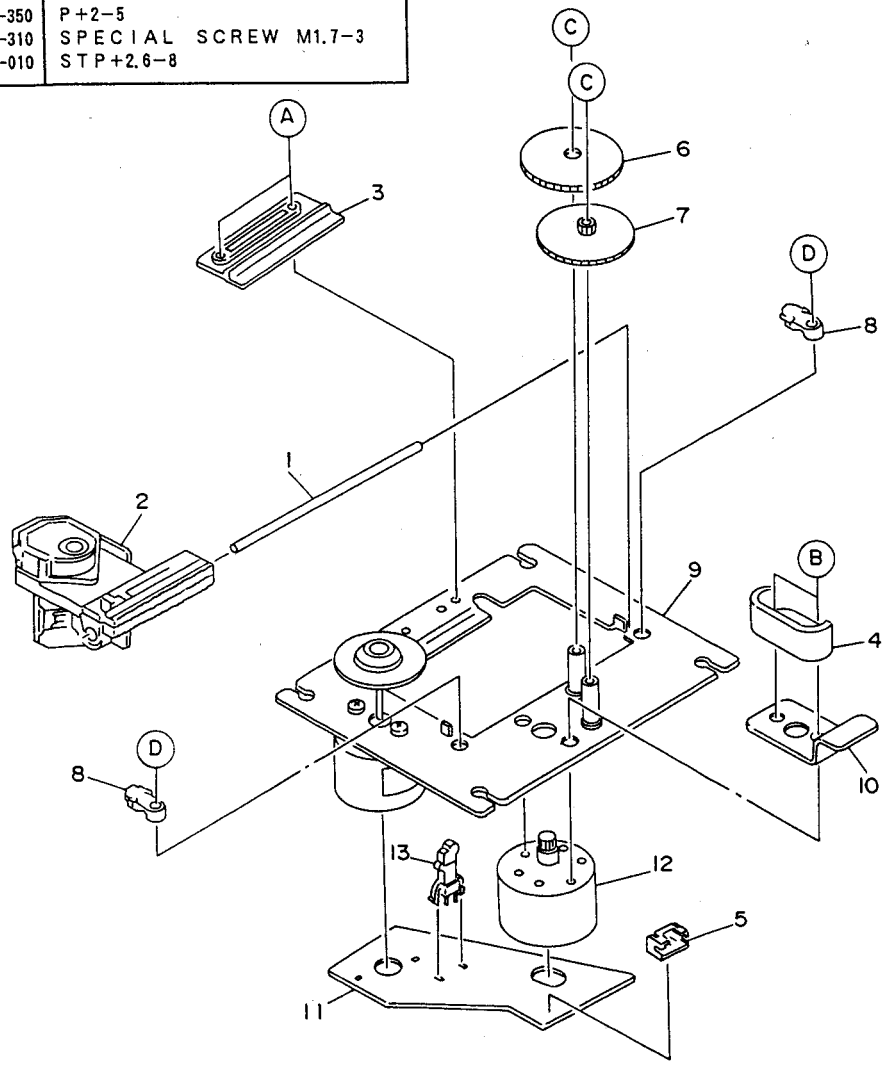
REF. NO.	PART NO.	DESCRIPTION
A	97-685-862-010	B VTT+2.6–6
B	92-642-142-010	SCREW
C	97-685-132-190	B +2.6–5
D	97-685-135-190	B +2.6–10
E	97-685-851-010	B VTT+2–4
F	93-558-708-210	STOPPER WASHER
G	94-812-554-010	WASHER
H	97-621-775-000	B +2.6–3
I	97-685-781-010	PTT+2–4
J	97-685-547-190	B +3–10
K	92-642-172-010	SPACER
L	97-682-902-310	PWH+2.6–8



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	2-1	★92-642-170-010	HOLDER, HINGE		1
	2-2	★92-642-164-010	SPRING, HINGE		1
	2-3	★92-642-160-010	SHAFT, SPRING T		4
	2-4	★92-642-137-010	SPRING, COIL B		2
	2-5	★92-642-139-010	SPRING, COIL A		2
	2-6	★92-642-158-010	FOOT, C		4
	2-7	★9X-264-210-510	SPRING SUB CHASSIS ASSY		1
	2-8	★92-642-159-010	PLATE, SPRING T		4
	2-9	★92-642-169-010	ROLLER		1
	2-10	★92-642-147-010	GUIDE, TRAY L		1
	2-11	★92-042-102-030	HOLDER, TRAY		2
	2-12	★92-642-146-010	GUIDE, TRAY R		1
	2-13	★92-642-154-020	GEAR, SPRING DRIVE		1
	2-14	93-053-307-010	BELT, LM		1
	2-15	★94-913-731-010	PULLEY, LOADING		1
	2-16	★92-642-148-010	GEAR, SPRING RELAY		1
	2-17	★92-642-149-010	COVER, SPRING GEAR		1
	2-18	9X-264-210-810	MAGNET ASSY		1
	2-19	★92-642-165-010	CHASSIS, CHUCK		1
	2-20	★92-642-181-010	PULLEY, CHUCKING		1
	2-21	★92-642-161-010	HOLDER, FRONT TRAY		2
	2-22	91-572-052-110	SWITCH, LEAF (OPEN/CLOSE)		1
	2-23	★9X-264-210-610	SPRING MAIN CHASSIS ASSY		1
	2-24	★92-642-512-010	HOLDER, MD BOSS REAR		1
	2-25	★92-642-510-010	HOLDER, MD BOSS		1
	2-26	★92-642-153-010	CAM, SPRING CONTROL		1
	2-27	★92-642-157-030	TAPE, FRONT		1
	2-28	★92-642-511-010	HOLDER, MD BOSS L		1
	2-29	★92-642-173-010	PLATE, RING		1
	2-30	★92-642-133-020	BOSS		1
	2-31	★9X-264-210-910	STOPPER RING ASSY		1
	2-32	9X-264-133-610	MOTOR ASSY (LOADING)		1
	2-33	★91-624-793-210	CD MOTOR 2 C.B		1
	2-34	★91-564-721-110	CONNECTOR, PIN 5P		1
	2-35	★92-642-156-010	TRAY		1
	2-36	★92-642-125-010	DAMPER		2

EXPLODED VIEW – 3

REF. NO.	PART NO.	DESCRIPTION
A	92-641-386-010	PTT+2-5
B	97-621-255-350	P+2-5
C	93-303-809-310	SPECIAL SCREW M1.7-3
D	92-641-447-010	STP+2.6-8



PART NO. CHANGED TO	REF. NO.	PART NO.	DESCRIPTION	COMMON MODEL	Q'TY
	3-1	★94-910-431-010	SHAFT,SLIDE		1
	3-2	98-848-127-310	PICK UP (KSS-210ASRP)		1
	3-3	★92-641-443-020	HOLDER,SLIDE		1
	3-4	★92-641-434-010	COVER,GEAR		1
	3-5	★92-564-720-110	CONNECTOR,PIN		1
	3-6	★92-641-404-020	GEAR,A		1
	3-7	★92-641-403-050	GEAR,B		1
	3-8	★92-641-448-020	CLAMP,SHAFT		2
	※ 3-9	9X-264-133-710	SP MOTOR ASSY (W/CHASSIS,T.T)(DISC)(RF-310T-11400)		1
	※ 3-9	9X-264-135-810	SP MOTOR ASSY (W/CHASSIS,T.T)(DISC)(MDN-4RA3NTAS)		1
	3-10	★92-641-371-010	STOPPER		1
	※ 3-11	★91-625-848-110	CD MOTOR 1 C.B (RF-310T-11400)		1
	※ 3-11	★91-628-263-110	CD MOTOR 1 C.B (MDN-4RA3NTAS/4RA3ETA)		1
	※ 3-12	9X-264-077-010	SLED MOTOR GEAR ASSY (SLED)(RF-310T-11400)		1
	※ 3-12	9X-264-134-410	SLED MOTOR GEAR ASSY (SLED)(MDN-4RA3ETA)		1
	3-13	91-572-053-110	SWITCH,LEAF (LIMIT)		1

※Caution
Two Types of the spindle (DISC) motor and sled motor are used, but they are not compatible.
Check the part numbers (MDN ····, RF ····) on the labels of motors and replace motors with the same one.